

SPECIFICATION

SITWORKS
MAKKOVIK, NL

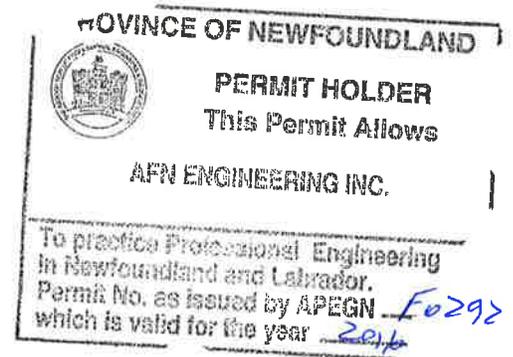
F6879-167009

PREPARED FOR

Fisheries and Oceans Canada

DATE

August 25, 2016
Revision 1



List of Drawings

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DRAWING NO

TITLE

C1	EXISTING SITE PLAN
C2	NEW SITE PLAN
C3	FENCE DETAILS

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Appendix A: Environmental Reports

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1.1 SCOPE

- .1 The work consists of the furnishing of all plant, labour, equipment and material for site works associated with a new boat storage area in Makkovik, Labrador, NL, in strict accordance with specifications and accompanying drawings and subject to all terms and conditions of the Contract.
- .2 Where electrical work is required, do all work in consultation with the Utility in accordance with the latest edition of the Canadian Electrical Code.

1.2 DESCRIPTION OF WORK

- .1 In general, work under this contract consists of, but is not limited to, the following:

Demolition - Scope of work to include demolition and disposal of existing RCMP facility (refer to environmental reports attached in Appendix A - all hazardous building materials including asbestos, to be removed by Contractor prior to demolition):

- Disconnect, terminate and preserve existing water, sewer and power services for future reconnection to trailer and new building.
- Demolish and dispose of existing RCMP facility (office and cell block) and all related components including exterior walkways, stairs, flagpoles, concrete bases, skirting, etc.

Civil Works - Scope of work to include clearing, grubbing, excavation, backfilling, site services and fencing:

- Clear site of all trees, brush, vegetation, root mat, etc.
- Excavate as required to subgrades and side slopes and remove and dispose of all unsuitable material.
- Connect to existing and install underground services to within 1.5m of

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future building and trailer, including culverts, sewer line and water line.

- Backfill site as required to finish grades.
- Install chain link fencing.
- Coordinate with local utility for overhead power supply, routing and installation.

Install Owner's Trailer - Scope of work to include relocation of trailer and setting in place and make ready for use:

- Relocate Owner-supplied trailer and set in place on new site.
- Level trailer on jack stands and wood cribbing.
- Connect services including water, sewer and power and make ready for use.
- Skirt in trailer with wood framing, including pressure treated plywood, pressure treated wood framing, insulation, and access door.
- Construct pressure treated wood landing and stairs to each man-door to NBC.

Do not proceed with any portion of the work until the Departmental Representative has approved the Contractor's written work plan.

1.3 SITE OF WORK

- .1 Work will be carried out in Makkovik in Labrador, NL.

1.4 DATUM

- .1 If requested by the Contractor, the Departmental Representative will establish a benchmark prior to the start of work activities.

1.5 FAMILIARIZATION WITH SITE

- .1 Before submitting a bid, bidders should visit the site and its surroundings to review and verify the form, nature and extent of the work, materials needed for the completion of the work, the means of access to the site, any accommodations

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they may require, and in general shall obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid or costs to do the work. No allowance shall be made subsequently in this connection on account of error or negligence to properly observe and determine the conditions that will apply.

- .2 Contractors, bidders or those they invite to site are to review specification Section 01 35 29 - Health and Safety Requirements before visiting site. Take all appropriate safety measures for any visit to site, either before or after acceptance of bid.
- .3 Obtain prior permission from the Departmental Representative before carrying out such site inspection.

1.6 CODES AND STANDARDS

- .1 Perform work in accordance with the latest edition of the National Building Code of Canada, and any other code of provincial or local application including all amendments up to project bid closing date provided that in any case of conflict or discrepancy, the more stringent requirements shall apply.
- .2 Materials and workmanship must meet or exceed requirements of specified standards, codes and referenced documents.

1.7 TERM ENGINEER

- .1 Unless specifically stated otherwise, the term Engineer where used in the Specifications and on the Drawings shall mean the Departmental Representative.

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1.8 SETTING OUT
WORK

- .1 Set grades and layout work in detail from control points and grades established by Departmental Representative.
- .2 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated or as directed by Departmental Representative.
- .3 Provide devices needed to layout and construct work.
- .4 Supply such devices required to facilitate Departmental Representative's inspection of work.

1.9 COST BREAKDOWN

- .1 Before submitting first progress claim submit breakdown of Contract price in detail as directed by Departmental Representative and aggregating contract price.
- .2 Provide cost breakdown in same format as the numerical and subject title system used in this specification project manual and thereafter sub-divided into major work components as directed by Departmental Representative.
- .3 Upon approval by Departmental Representative, cost breakdown will be used as basis for progress payment.
- .4 This will be a lump sum project. Individual work items will not be measured separately for payment.

1.10 WORK SCHEDULE

- .1 Submit within 7 work days of notification of acceptance of bid, a construction schedule showing commencement and completion of all work within the time stated on the Bid and Acceptance Form and the date stated in the bid acceptance

letter.

- .2 Provide sufficient details in schedule to clearly illustrate entire implementation plan, depicting efficient coordination of tasks and resources, to achieve completion of work on time and permit effective monitoring of work progress in relation to established milestones.
- .3 As a minimum, work schedule to be prepared and submitted in the form of Bar (GANTT) Charts, indicating work activities, tasks and other project elements, their anticipated durations and planned dates for achieving key activities and major project milestones provided in sufficient details and supported by narratives to demonstrate a reasonable plan for completion of project within designated time. Generally Bar Charts derived from commercially available computerized project management system are preferred but not mandatory.
- .4 Submit schedule updates on a minimum bi-weekly basis and more often, when requested by Departmental Representative, due to frequent changing project conditions. Provide a narrative explanation of necessary changes and schedule revisions at each update.
- .5 The schedule, including all updates, shall be to Departmental Representative's approval. Take necessary measures to complete work within approved time. Do not change schedule without Departmental Representative's approval.
- .6 All work on the project will be completed within the time indicated on the Bid and Acceptance Form.

1.11 ABBREVIATIONS

- .1 Following abbreviations of standard specifications have been used in this specification and on the drawings:

CGSB - Canadian Government Specifications Board

CSA - Canadian Standards Association

NLGA - National Lumber Grades Authority

ASTM - American Society for Testing and Materials

- .2 Where these abbreviations and standards are used in this project, latest edition in effect on date of bid call will be considered applicable.

1.12 SITE OPERATIONS

- .1 Arrange for sufficient space adjacent to project site for conduct of operations, storage of materials and so on. Exercise care so as not to obstruct or damage public or private property in area. All arrangements for space and access will be made by Contractor.

1.13 PROJECT MEETINGS

- .1 Departmental Representative will arrange project meetings and assume responsibility for setting times and recording minutes.
- .2 Project meetings will take place on site of work unless so directed by the Departmental Representative.
- .3 Departmental Representative will assume responsibility for recording minutes of meetings and forwarding copies to all parties present at the meetings.
- .4 Have a responsible member of firm present at all project meetings.

1.14 PROTECTION

- .1 Store all materials and equipment to be

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incorporated into work to prevent damage by any means. Note that there will be no temporary storage space available in the existing building for the Contractor.

- .2 Repair or replace all materials damaged in transit or storage to the satisfaction of Departmental Representative and at no cost to Canada.

1.15 EXISTING SERVICES

- .1 Where work involves breaking into or connecting to existing services, carry out work at times directed by governing authorities, with minimum of disturbance to site operations, and tenant operations.
- .2 Before commencing work, establish location and extent of service lines in area of work and notify Departmental Representative of findings.
- .3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of services. Provide temporary services when directed by Departmental Representative to maintain critical facility systems.

1.16 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each of the following:
 - .1 Contract Drawings
 - .2 Specifications
 - .3 Addenda
 - .4 Contract and any resulting amendments signed by contracting authority.
 - .5 Test Reports
 - .6 Copy of Approved Work Schedule
 - .7 Site specific Health and Safety Plan and other safety related documents.

1.17 PERMITS

- .1 Obtain and pay for all permits, certificates and licenses as required by Municipal, Provincial, Federal and other

Authorities.

- .2 Provide appropriate notifications of project to municipal and provincial inspection authorities.
- .3 Obtain compliance certificates as prescribed by legislative and regulatory provisions of municipal, provincial and federal authorities as applicable to the performance of work.
- .4 Submit to Departmental Representative, copy of application submissions and approval documents received for above referenced authorities.
- .5 Comply with all requirements, recommendations and advice by all regulatory authorities unless otherwise agreed in writing by Departmental Representative. Make requests for such deviations to these requirements sufficiently in advance of related work.

1.18 CUTTING,
FITTING AND
PATCHING

- .1 Execute cutting, including excavation, fitting and patching required to make work fit properly.

1.19 ACCEPTANCE

- .1 Prior to the issuance of the Certificate of Substantial Performance, in company with Departmental Representative, make a check of all work. Correct all discrepancies before final inspection and acceptance.

1.20 WORKS
COORDINATION

- .1 Responsible for coordinating the work of the various trades, where the work of such trades interfaces with each other.
- .2 Convene meetings between trades whose work

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interfaces and ensure that they are fully aware of the areas and the extent of where interfacing is required. Provide each trade with the plans and specifications of the interfacing trade, as required, to assist them in planning and carrying out their respective work.

- .3 Canada will not be responsible for or held accountable for any extra costs incurred as a result of the failure to carry out coordination work. Disputes between the various trades as a result of their not being informed of the areas and extent of interface work shall be the sole responsibility of the General Contractor and shall be resolved at no extra cost to Canada.

1.21 CONTRACTOR'S
USE OF SITE

- .1 Responsible for arranging the storage of materials on or off site, and any materials stored at the site which interfere with any of the day to day activities at or near the site will be moved promptly at the Contractor's expense, upon request by Departmental Representative.
- .2 Exercise care so as not to obstruct or damage public or private property in the area.
- .3 At completion of work, restore area to its original condition. Damage to ground and property will be repaired by Contractor. Remove all construction materials, residue, excess, etc., and leave site in a condition acceptable to Departmental Representative.

1.22 WORK
COMMENCEMENT

- .1 Mobilization to project site is to commence immediately after acceptance of

bid and submission of Site Specific Safety Plan and insurance and bonding documentation, unless otherwise agreed by Departmental Representative.

- .2 Project work on site is to commence as soon as possible, with a continuous reasonable work force, unless otherwise agreed by Departmental Representative.
- .3 Delivery challenges, coordination with site users, and the location of the work site may require the use of longer working days and additional work force to complete the project within the specified completion time.
- .4 Make every effort to ensure that sufficient material and equipment is delivered to site at the earliest possible date after acceptance of bid and replenished as required.

PART 1 - GENERAL

1.1 SECTION
INCLUDES

- .1 Product data.
- .2 Samples.
- .3 Certificates.

1.2 SUBMITTAL
GENERAL REQUIREMENTS

- .1 Submit to Departmental Representative for review submittals listed, including samples, certificates and other data, as specified in other sections of the Specifications. Note that any and all changes to the contract will have to be approved in writing by the Contracting Authority. Departmental Representative will provide a list of required samples/product data sheets to be provided, after contract award.
- .2 Submit with reasonable promptness and in orderly sequence so as to allow for Departmental Representative's review and not cause delay in Work. Failure to submit in ample time will not be considered sufficient reason for an extension of Contract time and no claim for extension by reason of such default will be allowed.
- .3 Do not proceed with work until relevant submissions are reviewed by Departmental Representative.
- .4 Present product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units, provide soft converted values.
- .6 Review submittals prior to submission to Departmental Representative. Ensure during review that necessary requirements have been

determined and verified, required field measurements or data have been taken, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.

.1 Submittals not stamped, signed, dated and identified as to specific project will be returned unexamined by Departmental Representative and considered rejected.

.7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.8 Verify field measurements and affected adjacent work and coordinate.

.9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.

.11 Submittal format: paper originals, or alternatively clear and fully legible photocopies of originals. Facsimiles are not acceptable, except in special circumstances pre-approved by Departmental Representative. Poorly printed non-legible photocopies or facsimiles will not be accepted and be returned for resubmission.

.12 Make changes or revision to submissions which Departmental Representative may require, consistent with Contract Documents and resubmit as directed by Departmental Representative. When resubmitting, notify Departmental Representative in writing of any

revisions other than those requested.

- .13 Keep one reviewed copy of each submittal document on site for duration of Work.

1.3 PRODUCT DATA

- .1 Product data includes drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit sufficient copies of product data which are required by the General Contractor and sub-contractors plus 2 copies which will be retained by Departmental Representative. Ensure sufficient numbers are submitted to enable one complete set to be included in each of the maintenance manuals specified, if applicable.
- .3 Allow 10 calendar days for Departmental Representative's review of each submission.
- .4 Adjustments or corrections made on product data by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, advise Departmental Representative in writing prior to proceeding with Work.
- .5 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections and comments are made, fabrication and installation may proceed upon receipt of shop drawings. If product data are rejected and noted to be Resubmitted, do not proceed with that portion of work until resubmission and review of corrected product data, through same submission procedures indicated above.
- .6 Accompany each submission with transmittal letter, containing:

- .1 Date.
- .2 Project title and project number.
- .3 Contractor's name and address.
- .4 Identification and quantity of each product data and sample.
- .5 Other pertinent data.
- .7 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and project number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Cross references to particular details of contract drawings and specifications section number for which product data submission addresses.
 - .6 Details of appropriate portions of Work.
- .8 After Departmental Representative's review, distribute copies.
- .9 The review of samples and product data by the Departmental Representative or their delegated representative is for sole purpose of ascertaining conformance with general concept. This review shall not mean that the Departmental Representative approves the detail design inherent in the product data, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in product data or of responsibility for meeting all requirements of the construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed

and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 SCHEDULES,
PERMITS AND
CERTIFICATES

- .1 Upon acceptance of bid, submit to Departmental Representative copy of Work Schedule and various other schedules, permits, certification documents and project management plans as specified in other sections of the Specifications.
- .2 Submit copy of permits, notices, compliance Certificates received by Regulatory Agencies having jurisdiction and as applicable to the Work.
- .3 Submission of above documents to be in accordance with Submittal General Requirements procedures specified in this section.

- 1.1 SECTION INCLUDES .1 Fire Safety Requirements.
- .2 Hot Work Permit.
- 1.2 RELATED WORK .1 Section 01 35 29 - Health and Safety Requirements.
- 1.3 REFERENCES .1 Fire Protection Standards issued by Fire Protection Services of Human Resources Development Canada as follows:
- .1 National Fire Code - Standard for Construction Operations - latest edition (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/301/page00.shtml).
- .2 National Fire Code - Standard for Welding and Cutting - latest edition (http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/302/page00.shtml).
- .3 FCC standards, may also be viewed at the Regional Labour Canada Office located at Baine Johnson Centre, 10 Fort William Place, St. John's, NL, A1C 1K4; Telephone 1-800-641-4049; fax 1-709-772-5985.
- 1.4 DEFINITIONS .1 Hot Work defined as:
- .1 Welding work.
- .2 Cutting of materials by use of torch or other open flame devices.
- .3 Grinding with equipment which produces sparks.
- 1.5 SUBMITTALS .1 Submit copy of Hot Work Procedures and sample of Hot Work permit to Departmental Representative for review, within five (5) calendar days after notification of acceptance of bid.
- .2 Submit in accordance with the Submittal General Requirements specified in Section

01 33 00.

1.6 FIRE SAFETY
REQUIREMENTS

- .1 Implement and follow fire safety measures during Work. Comply with following:
 - .1 National Fire Code, latest edition.
 - .2 Fire Protection Standards FCC 301 and FCC 302 - latest edition.
 - .3 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29 - Health and Safety Requirements.
- .2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.7 HOT WORK
AUTHORIZATION

- .1 Obtain Departmental Representative's written "Authorization to Proceed" before conducting any form of Hot work on site.
- .2 To obtain authorization submit to Departmental Representative:
 - .1 Contractor's typewritten Hot Work Procedures to be followed on site as specified below.
 - .2 Description of the type and frequency of Hot Work required.
 - .3 Sample Hot Work Permit to be used.
- .3 Upon review and confirmation that effective fire safety measures will be implemented during performance of hot work, Departmental Representative will provide authorization to proceed as follows:
 - .1 Issue one written "Authorization to Proceed" covering the entire project for duration of work or;
 - .2 Separate work, or segregate certain parts of work, into individual entities. Each

entity requiring a separately written "Authorization to Proceed" from Departmental Representative. Follow Departmental Representative's directives in this regard.

- .4 Requirement for individual authorization based on:
 - .1 Nature or phasing of work;
 - .2 Risk to Facility operations;
 - .3 Quantity of various trades needing to perform hot work on project or;
 - .4 Other situation deemed necessary by Departmental Representative to ensure fire safety on premises.
- .5 Do not perform any Hot Work until receipt of Departmental Representative's written "Authorization to Proceed" for that portion of work.

1.8 HOT WORK PROCEDURES

- .1 Develop and implement safety procedures and work practices to be followed during the performance of Hot Work.
- .2 Procedures to include:
 - .1 Requirement to perform hazard assessment of site and immediate hot work area for each hot work event in accordance with Hazard Assessment and Safety Plan requirements of Section 01 35 29.
 - .2 Use of a Hot Work Permit system for each hot work event.
 - .3 The step by step process of how to prepare and issue permit.
 - .4 Permit shall be issued by Contractor's site Superintendent, or other authorized person designated by Contractor, granting permission to worker or subcontractor to proceed with hot work.
 - .5 Provision of a designated person to carryout a Fire Safety Watch for a minimum of 60 minutes immediately upon completion of the hot work.

.6 Compliance with fire safety codes and standards specified herein and occupational health and safety regulations specified in Section 01 35 29.

.3 Generic procedures, if used, must be edited and supplemented with pertinent information tailored to reflect specific project conditions. Clearly label as being the Hot Work Procedures applicable to this contract.

.4 Hot Work Procedures shall clearly establish worker instructions and allocate responsibilities of:

- .1 Worker(s),
- .2 Authorized person issuing the Hot Work Permit,
- .3 Fire Safety Watcher,
- .4 Subcontractors and Contractor.

.5 Brief all workers and subcontractors on Hot Work Procedures and Permit system established for project. Stringently enforce compliance.

.1 Failure to comply with the established procedures may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29.

1.9 HOT WORK
PERMIT

.1 Hot Work Permit to include, as a minimum, the following data:

- .1 Project name and project number.
- .2 Building name, address and specific room or area where hot work will be performed.
- .3 Date when permit issued.
- .4 Description of hot work type to be performed.
- .5 Special precautions required, including type of fire extinguisher needed.
- .6 Name and signature of person authorized to issue the permit.
- .7 Name of worker (clearly printed) to

which the permit is being issued.

.8 Time Duration that permit is valid (not to exceed 8 hours). Indicate start time and date, and completion time and date.

.9 Worker signature with date and time upon hot work termination.

.10 Specified time period requiring safety watch.

.11 Name and signature of designated Fire Safety Watcher, complete with time and date when safety watch terminated, certifying that surrounding area was under continual surveillance and inspection during the full watch time period specified in Permit and commenced immediately upon completion of Hot Work.

.2 Permit to be typewritten form. Industry Standard forms shall only be used if all data specified above is included on form.

.3 Each Hot Work Permit to be completed in full and signed as follows:

.1 Authorized person issuing Permit before hot work commences.

.2 Worker upon completion of Hot Work.

.3 Fire Safety Watcher upon termination of safety watch.

.4 Returned to Contractor's Site Superintendent for safe keeping.

1.10 DOCUMENTS
ON SITE

.1 Keep Hot Work Permits and Hazard assessment documentation on site for duration of Work.

.2 Upon request, make available to Departmental Representative or to authorized safety representative for inspection.

- 1.1 SECTION INCLUDES .1 Procedures to isolate and lockout electrical facility or other equipment from energy source.
- 1.2 RELATED WORK .1 Section 01 35 24 - Fire Safety Requirements.
.2 Section 01 35 29 - Health and Safety Requirements.
- 1.3 REFERENCES .1 C22.1-06 - Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations.
.2 CAN/CSA C22.3 No. 1-10 - Overhead Systems.
.3 COSH, Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- 1.4 DEFINITIONS .1 Electrical Facility: means any system, equipment, device, apparatus, wiring, conductor, assembly or part thereof that is used for the generation, transformation, transmission, distribution, storage, control, measurement or utilization of electrical energy, and that has an amperage and voltage that is dangerous to persons.
.2 Guarantee of Isolation: means a guarantee by a competent person in control or in charge that a particular facility or equipment is isolated.
.3 De-energize: in the electrical sense, that a piece of equipment is isolated and grounded, e.g. if the equipment is not grounded, it cannot be considered de-energized (DEAD).
.4 Guarded: means that an equipment or facility is covered, shielded, fenced, enclosed, inaccessible by location, or otherwise

protected in a manner that, to the extent that is reasonably practicable, will prevent or reduce danger to any person who might touch or go near such item.

- .5 Isolate: means that an electrical facility, mechanical equipment or machinery is separated or disconnected from every source of electrical, mechanical, hydraulic, pneumatic or other kind of energy that is capable of making it dangerous.
- .6 Live/alive: means that an electrical facility produces, contains, stores or is electrically connected to a source of alternating or direct current of an amperage and voltage that is dangerous or contains any hydraulic, pneumatic or other kind of energy that is capable of making the facility dangerous to persons.

1.5 COMPLIANCE
REQUIREMENTS

- .1 Perform lockouts in compliance with:
 - .1 Canadian Electrical Code.
 - .2 Federal and Provincial Occupational Health and Safety Acts and Regulations as specified in Section 01 35 29.
 - .3 Regulations and code of practice as applicable to mechanical equipment or other machinery being de-energized.
 - .4 Procedures specified herein.
- .2 In event of conflict between any provisions of above authorities the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, Departmental Representative will advise on the course of action to be followed.

1.6 SUBMITTALS

- .1 Submit copy of proposed Lockout Procedures and sample form of lockout permit or lockout tags for review.

- .2 Submit documentation within 7 calendar days of acceptance of bid. Do not proceed with work until submittal has been reviewed by Departmental Representative.
- .3 Submit above documents in accordance with the submittal requirements specified in Section 01 33 00.
- .4 Resubmit Lockout Procedures with noted revisions as may result from Departmental Representative's review.

1.7 ISOLATION OF
EXISTING SERVICES

- .1 Obtain Departmental Representative's written authorization prior to conducting work on an existing active, energized service or facility required as part of the work and before proceeding with lockout of such services or facility.
- .2 To obtain authorization, submit to Departmental Representative the following documentation:
 - .1 Written Request for Isolation of the service or facility and;
 - .2 Copy of Contractor's Lockout Procedures.
- .3 Make a Request for Isolation for each event, unless directed otherwise by Departmental Representative, and as follows:
 - .1 Fill-out standard forms in current use at the Facility when so directed by Departmental Representative or;
 - .2 Where no form exist at Facility, make request in writing identifying:
 - .1 Identification of system or equipment to be isolated, including it's location;
 - .2 Time duration, indicating Start time and date, and Completion time and date when isolation will be in effect;

- .3 Voltage of service feed to system or equipment being isolated;
- .4 Name of person making the request.
- .3 Document to be in typewritten format.

- .4 Do not proceed until receipt of written notification from Departmental Representative granting the Isolation Request and authorization to proceed with the isolation of designated equipment or facility. Departmental Representative may designate other individual at the Facility as the person authorized to grant the Isolation Request.
- .5 Conduct safe, orderly shut down of equipment or facilities, de-energize and isolate power and other sources of energy and lockout items in accordance with requirement of clause 1.8 below.
- .6 Plan and schedule shut down of existing services in consultation with the Departmental Representative and the Facility Manager. Minimize impact and downtime of facility operations.
- .7 Determine in advance, as much as possible, in cooperation with the Departmental Representative, the type and frequency of situations which will require a Request for Isolation. Follow Departmental Representative's directives in this regard.
- .8 Conduct hazard assessment as part of the planning process of isolating existing equipment and facilities. Hazard Assessments to conform with requirements of Health and Safety Section 01 35 29.

1.8 LOCKOUTS

- .1 Isolate and lockout electrical facilities, mechanical equipment and machinery from all potential energy sources prior to starting

work on such items.

- .2 Develop and implement lockout procedures to be followed on site as an integral part of the Work.
- .3 Use energy isolation lockout devices specifically designed and appropriate for type of facility or equipment being locked out.
- .4 Use industry standard lockout tags.
- .5 Provide appropriate safety grounding and guards as required.
- .6 Prepare Lockout Procedures in writing. Describe safe work practices, work functions and sequence of activities to be followed on site to safely isolate all potential energy sources and lockout/tagout facilities and equipment.
- .7 Include within procedures a system of worker request and issuance of individual lockout permit by a person, employed by Contractor, designated to be "in-charge" and being responsible for:
 - .1 Controlling issuance of permits or tags to workers.
 - .2 Determining permit duration.
 - .3 Maintaining record of permits and tags issued.
 - .4 Submitting a Request for Isolation to Departmental Representative when required in accordance with Clause 1.7 above.
 - .5 Designating a Safety Watcher, when one is required based on type of work.
 - .6 Ensuring equipment or facility has been properly isolated, providing a Guarantee of Isolation to worker(s) prior to proceeding with work.
 - .7 Collecting and safekeeping lockout

tags, returned by workers, as a record of the event.

- .8 Clearly establish, describe and allocate, within procedures, the responsibilities of:
 - .1 Workers.
 - .2 Designated person controlling issuance of lockout tags/permits.
 - .3 Safety Watcher.
 - .4 Subcontractors and General Contractor.
- .9 Procedures shall meet the requirements of Codes and Regulations specified in clause 1.5 above.
- .10 Generic procedures, if used, must be edited, supplemented with pertinent information and tailored to reflect specific project conditions. Clearly label as being the procedures applicable to this contract.
 - .1 Incorporate site specific rules and procedures established by Facility Manager and in force at site. Obtain such procedures through Departmental Representative.
- .11 Procedures to be in typewritten format.
- .12 Submit copy of Lockout Procedures to Departmental Representative, in accordance with submittal requirements of clause 1.6 herein, prior to commencement of work.

1.9 CONFORMANCE

- .1 Ensure that lockout procedures, as established for project on site, are stringently followed. Enforce use and compliance by all workers.
- .2 Brief all persons working on electrical facilities, mechanical and other equipment fed by an energy source on requirements of this section.

- .3 Failure to perform lockouts in accordance with regulatory requirements or follow procedures specified herein may result in the issuance of a Non-Compliance Notification at Departmental Representative's discretion with possible disciplinary measures imposed as specified in Section 01 35 29.

1.10 DOCUMENTS
ON SITE

- .1 Post Lockout Procedures on site in common location for viewing by workers.
- .2 Keep copies of Request for Isolation submitted to Departmental Representative and lockout permits or tags issued to workers during the course of work for full project duration.
- .3 Upon request, make such data available to Departmental Representative or to authorized safety representative for inspection.

- 1.1 RELATED WORK .1 Section 01 35 24 - Special Procedures on Fire Safety Requirements.
- 1.2 DEFINITIONS .1 COSH: Canada Occupational Health and Safety Regulations made under Part II of the Canada Labour Code.
- .2 Competent Person: means a person who is:
- .1 Qualified by virtue of personal knowledge, training and experience to perform assigned work in a manner that will ensure the health and safety of persons in the workplace, and;
- .2 Knowledgeable about the provisions of occupational health and safety statutes and regulations that apply to the Work and;
- .3 Knowledgeable about potential or actual danger to health or safety associated with the Work.
- .3 Medical Aid Injury: any minor injury for which medical treatment was provided and the cost of which is covered by Workers' Compensation Board of the province in which the injury was incurred.
- .4 PPE: personal protective equipment.
- .5 Work Site: where used in this section shall mean areas, located at the premises where Work is undertaken, used by Contractor to perform all of the activities associated with the performance of the Work.
- 1.3 SUBMITTALS .1 Make submittals in accordance with Section 01 33 00.
- .2 Submit to Departmental Representative, copies of the following documents including updates.
- .1 Site specific Health and Safety Plan.

- .2 Building permit, compliance certification and other permits obtained.
 - .3 Reports or directives issued by Federal and Provincial Inspectors and other Authorities having jurisdiction.
 - .4 Accident or incident reports.
 - .5 WHMIS - MSDS data sheets.
 - .6 Name of Contractor's Representative designated to perform health and safety supervision in site.
 - .7 Certificate of clearance from Workplace Health Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.
-
- .3 Submit within five (5) work days of notification of Bid Acceptance. Provide one (1) copy.
 - .4 Departmental Representative will review Health and Safety Plan and provide comments.
 - .5 The Contractor will revise the Plan as appropriate and resubmit within five (5) work days after receipt of comments.
 - .6 Departmental Representative's review and comments made of the Plan shall not be construed as an endorsement, approval or implied warranty of any kind by Canada and does not reduce Contractor's overall responsibility for Occupational Health and Safety of the Work.
 - .7 Submit revisions and updates made to the Plan during the course of Work.
-
- 1.4 COMPLIANCE REQUIREMENTS
 - .1 Comply with the Occupational Health and Safety Act for the Province of Newfoundland and Labrador, and the Occupational Health and Safety Regulations

made pursuant to the Act.

- .2 Comply with Canada Labour Code Part II, (entitled Occupational Health and Safety) and the Canada Occupational Health and Safety Regulations (COSH) as well as any other regulations made pursuant to the Act.
 - .1 The Canada Labour Code can be viewed at: [www.http://laws.justice.gc.ca/en/L-2/](http://laws.justice.gc.ca/en/L-2/)
 - .2 COSH can be viewed at: [www.http://laws.justice.gc.ca/eng/SOR-86-304/ne.html](http://laws.justice.gc.ca/eng/SOR-86-304/ne.html).
 - .3 A copy may be obtained at: Canadian Government Publishing Public Works & Government Services Canada Ottawa, Ontario, K1A 0S9 Tel: (819) 956-4800 (1-800-635-7943) Publication No. L31-85/2000 E or F).
- .3 Observe construction safety measures of:
 - .1 Part 8 of National Building Code.
 - .2 Municipal by-laws and ordinances.
- .4 In case of conflict or discrepancy between any specified requirements, the more stringent shall apply.
- .6 Maintain Workers Compensation Coverage in good standing for duration of Contract. Provide proof through submission of Certificate of Clearance from Workplace Health, Safety and Compensation Commission (Assessment Services Department) of Newfoundland and Labrador.
- .7 Obtain and maintain worker medical surveillance documentation where prescribed by legislation or regulation.

1.5 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property and for protection of persons and environment

adjacent to the site to extent that they may be affected by conduct of Work.

- .2 Comply with and enforce compliance by all workers, sub-contractors and other persons granted access to work site with safety requirements of Contract Documents, applicable Federal, Provincial, and local by-laws, regulations, and ordinances, and with site specific Health and Safety Plan.

1.6 SITE CONTROL
AND ACCESS

- .1 Control the Work and entry points to Work Site. Approve and grant access only to workers and authorized persons. Immediately stop and remove non-authorized persons.
 - .1 Departmental Representative will provide names of those persons authorized by Departmental Representative to enter onto Work Site and will ensure that such authorized persons have the required knowledge and training on Health and Safety pertinent to their reason for being at the site, however, Contractor remains responsible for the health and safety of authorized persons while at the Work Site.
 - .2 Isolate Work Site from other areas of the premises by use of appropriate means.
 - .1 Erect fences, hoarding, barricades and temporary lighting as required to effectively delineate the Work Site, stop non-authorized entry, and to protect pedestrians and vehicular traffic around and adjacent to the Work and create a safe environment.
 - .2 Post signage at entry points and other strategic locations indicating restricted access and conditions for access.
- .3 Provide safety orientation session to

persons granted access to Work Site.
Advise of hazards and safety rules to be observed while on site.

- .4 Ensure persons granted site access wear appropriate PPE. Supply PPE to inspection authorities who require access to conduct tests or perform inspections.
- .5 Secure Work Site against entry when inactive or unoccupied and to protect persons against harm. Provide security guard where adequate protection cannot be achieved by other means.

1.7 PROTECTION

- .1 Give precedence to safety and health of persons and protection of environment over cost and schedule considerations for Work.
- .2 Should unforeseen or peculiar safety related hazard or condition become evident during performance of Work, immediately take measures to rectify situation and prevent damage or harm. Advise Departmental Representative verbally and in writing.

1.8 FILING OF NOTICE

- .1 File Notice of Project with pertinent provincial health and safety authorities prior to beginning of Work.

1.9 PERMITS

- .1 Post permits, licenses and compliance Certificates at Work Site.
- .2 Where a particular permit or compliance certificate cannot be obtained, notify Departmental Representative in writing and obtain approval to proceed before carrying out applicable portion of work.

1.10 HAZARD ASSESSMENTS

- .1 Perform site specific health and safety hazard assessment of the Work and its site.

- .2 Carryout initial assessment prior to commencement of Work with further assessments as needed during progress of work, including when new trades and subcontractors arrive on site.
- .3 Record results and address in Health and Safety Plan.
- .4 Keep documentation on site for entire duration of the Work.

1.11 PROJECT/SITE
CONDITIONS

- .1 The following are known or potential project related safety hazards at site:
 - .1 Heavy lifting.
 - .2 Working at heights.
 - .3 Cutting tools and other construction power tools.
 - .4 Sharp objects (construction debris).
- .2 Above items shall not be construed as being complete and inclusive of potential health, and safety hazards encountered during work.
- .3 Include above items into hazard assessment process.

1.12 MEETINGS

- .1 Contractor to hold pre-construction health and safety meeting prior to commencement of Work. Ensure attendance of:
 - .1 Superintendent of Work.
 - .2 Contractor's designated Health & Safety Site Representative.
 - .3 Subcontractor's Health and Safety Site Representative.
 - .4 Health and Safety Site Coordinator.
- .2 Conduct regularly scheduled tool box and safety meetings during the Work in

conformance with Occupational Health and Safety regulations.

.3 Keep documents on site.

1.13 HEALTH AND SAFETY PLAN

.1 Prior to commencement of Work, develop written Health and Safety Plan specific to the work. Implement, maintain, and enforce Plan for entire duration of Work and until final demobilization from site.

.2 Health and Safety Plan shall include the following components:

.1 List of health risks and safety hazards identified by hazard assessment.

.2 Control measures used to mitigate risks and hazards identified.

.3 On-site Contingency and Emergency Response Plan as specified below.

.4 On-site Communication Plan as specified below.

.5 Name of Contractor's designated Health & Safety Site Representative and information showing proof of his/her competence and reporting relationship in Contractor's company.

.6 Names, competence and reporting relationship of other supervisory personnel used in the Work for occupational health and safety purposes.

.3 On-site Contingency and Emergency Response Plan shall include:

.1 Operational procedures, evacuation measures and communication process to be implemented in the event of an emergency.

.2 Evacuation Plan: site and floor plan layouts showing escape routes, marshaling areas. Details on alarm notification methods, fire drills,

location of fire fighting equipment and other related data.

- .3 Name, duties and responsibilities of persons designated as Emergency Warden(s) and deputies.
- .4 Emergency Contacts: name and telephone number of officials from:
 - .1 General Contractor and subcontractors.
 - .2 Pertinent Federal and Provincial Departments and Authorities having jurisdiction.
 - .3 Local emergency resource organizations.
- .4 On-site Communication Plan:
 - .1 Procedures for sharing of work related safety information to workers and subcontractors, including emergency and evacuation measures.
- .5 Address all activities of the Work including those of subcontractors.
- .6 Review Health and Safety Plan regularly during the Work. Update as conditions warrant to address emerging risks and hazards, such as whenever new trade or subcontractor arrive at Work Site.
- .7 Departmental Representative will respond in writing, where deficiencies or concerns are noted and may request re-submission of the Plan with correction of deficiencies or concerns.
- .8 Post copy of the Plan, and updates, prominently on Work Site.

1.14 SAFETY SUPERVISION

- .1 Employ Health & Safety Site Representative responsible for daily supervision of health and safety of the Work.
- .2 Health & Safety Site Representative may be

the Superintendent of the Work or other person designated by Contractor and shall be assigned the responsibility and authority to:

- .1 Implement, monitor and enforce daily compliance with health and safety requirements of the Work
 - .2 Monitor and enforce Contractor's site-specific Health and Safety Plan.
 - .3 Conduct site safety orientation session to persons granted access to Work Site.
 - .4 Ensure that persons allowed site access are knowledgeable and trained in health and safety pertinent to their activities at the site or are escorted by a competent person while on the Work Site.
 - .5 Stop the Work as deemed necessary for reasons of health and safety.
- .3 Health & Safety Site Representative must:
- .1 Be qualified and competent person in occupational health and safety.
 - .2 Have site-related working experience specific to activities of the Work.
 - .3 Be on Work Site at all times during execution of the Work.
 - .4 All supervisory personnel assigned to the Work shall also be competent persons.
 - .5 Inspections:
 - .1 Conduct regularly scheduled safety inspections of the Work on a minimum daily basis. Record deficiencies and remedial action taken.
 - .2 Conduct Formal Inspections on a minimum monthly basis. Use standardized safety inspection forms. Distribute to subcontractors.
 - .3 Follow-up and ensure corrective measures are taken.
 - .6 Keep inspection reports and

supervision related documentation on site.

1.15 TRAINING

- .1 Use only skilled workers on Work Site who are effectively trained in occupational health and safety procedures and practices pertinent to their assigned task.
- .2 Maintain employee records and evidence of training received. Make data available to Departmental Representative upon request.
- .3 When unforeseen or peculiar safety-related hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.
- .4 All workers dealing with hazardous materials are required to provide evidence of training, in accordance with Provincial regulations.

1.16 MINIMUM
SITE SAFETY RULES

- .1 Notwithstanding requirement to abide by federal and provincial health and safety regulations; ensure the following minimum safety rules are obeyed by persons granted access to Work Site:
 - .1 Wear appropriate PPE pertinent to the Work or assigned task; minimum being hard hat, safety footwear, safety glasses and safety vest.
 - .2 Immediately report unsafe condition at site, near-miss accident, injury and damage.
 - .3 Maintain site and storage areas in a tidy condition free of hazards causing injury.
 - .4 Obey warning signs and safety tags.
- .2 Brief persons of disciplinary protocols to

be taken for non compliance. Post rules on site.

1.17 CORRECTION OF
NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative will stop Work if non-compliance of health and safety regulations is not corrected in a timely manner.

1.18 INCIDENT
REPORTING

- .1 Investigate and report the following incidents to Departmental Representative:
 - .1 Incidents requiring notification to Provincial Department of Occupational Safety and Health, Workers Compensation Board or to other regulatory Agency.
 - .2 Medical aid injuries.
 - .3 Property damage in excess of \$10,000.00.
- .2 Submit report in writing.

1.19 HAZARDOUS
PRODUCTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS).
- .2 Keep MSDS data sheets for all products delivered to site.
 - .1 Post on site.
 - .2 Submit copy to Departmental Representative.

1.20 SITE RECORDS

- .1 Maintain on Work Site copy of safety related documentation and reports stipulated to be produced in compliance

with Acts and Regulations of authorities having jurisdiction and of those documents specified herein.

- .2 Upon request, make available to Departmental Representative or authorized Safety Officer for inspection.

1.21 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Work Site in accordance with Acts and Regulations of Province having jurisdiction.
- .2 Post other documents as specified herein, including:
 - .1 Site specific Health and Safety Plan.
 - .2 WHMIS data sheets.

- 1.1 DEFINITIONS .1 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
- 1.2 DISPOSAL OF WASTES AND HAZARDOUS MATERIALS
- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of hazardous waste or volatile materials, such as mineral spirits, paints, thinners, oil or fuel into waterways, storm or sanitary sewers or waste landfill sites.
- .3 Store, handle and dispose of hazardous materials and hazardous waste in accordance with applicable federal and provincial laws, regulations, codes and guidelines.
- .4 Dispose of construction waste materials and demolition debris, resulting from work, at approved landfill sites only. Carryout such disposal in strict accordance with provincial and municipal rules and regulations. Separate out and prevent improper disposal of items banned from landfills.
- .5 Establish methods and undertake construction practices which will minimize waste and optimize use of construction materials. Separate at source all construction waste materials, demolition debris and product packaging and delivery containers into various waste categories in order to maximize recycling abilities of various materials and avoid disposal of debris at landfill site(s) in a "mixed state". Where recycling firms, specializing in recycling of specific materials exist, transport such materials to the recycling facility and avoid disposal at landfill sites.

- .6 Communicate with landfill operator prior to commencement of work, to determine what specific construction, demolition and renovation waste materials have been banned from disposal at the landfill and at transfer stations.

1.3 POLLUTION
CONTROL

- .1 Control emissions from equipment and plant to local authorities emission requirements.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.
- .4 Have emergency spill response equipment and rapid clean-up kit, appropriate to work, at site. Locate adjacent to work and where hazardous materials are stored. Provide personal protective equipment as required for clean-up.
- .5 Report, to Federal and Provincial Department of the Environment, spills of petroleum and other hazardous materials as well as accidents having potential of polluting the environment. Also notify Departmental Representative and submit a written spill report to Departmental Representative within 24 hours of occurrence.

1.1 SANITARY
FACILITIES

- .1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
- .2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.2 WATER SUPPLY

- .1 Arrange, pay for and maintain temporary water supply in accordance with governing regulations and ordinances.

1.3 CONSTRUCTION
SIGN AND NOTICES

- .1 Contractor or subcontractor advertisement signboards are not permitted on site.
- .2 Only notices of safety or instructions are permitted on site.
- .3 Maintenance and Disposal of Site Signs:
 - .1 Maintain approved signs and notices in good condition for duration of project and dispose of off site on completion of project or earlier if directed by Departmental Representative.

1.4 REMOVAL OF
TEMPORARY
FACILITIES

- .1 Remove temporary facilities from site when directed by Departmental Representative.

PART 1 - GENERAL

1.1 GENERAL

- .1 Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
- .2 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .3 Prevent accumulation of wastes which create hazardous conditions.
- .4 Provide adequate ventilation during use of volatile or noxious substances.

1.2 CLEANING DURING CONSTRUCTION

- .1 Maintain project grounds and public properties in a tidy condition, free from accumulations of waste material and debris. Clean areas on a daily basis.
- .2 Provide on-site garbage containers for collection of waste materials and debris.
- .3 Remove waste materials and debris from site on a daily basis.

1.3 FINAL CLEANING

- .1 In preparation for acceptance of the Work perform final cleaning.

1.1 PROJECT RECORD
DOCUMENTS

- .1 Departmental Representative will provide two white print sets of contract drawings and two copies of Specifications.
- .2 Maintain at site one set of the contract drawings and specifications to record actual "As-Built" site conditions.
- .3 At project completion, submit full manual of products used in new work (complete with manufacturer's data sheets, appliance warranty data, user manuals, etc.).

1.1 SCOPE

- .1 This section specifies supply, placement and compaction of rock and gravel fill as required to bring the grade to the underside of the granular base courses as noted on the drawings or as directed by Departmental Representative.
- .2 Contractor to review drawings and visit site prior to tender close to determine the required rock and gravel fill quantities to suit the work. Existing material excavated as part of the work may be re-used, only if meeting these specifications to the approval of the Departmental Representative. Where fill is referred to as Type 1, Type 2 or Type 3 fill, the standard of acceptance will be as defined in the NL Municipal Water and Sewer Master Specifications.

1.2 ROCK FILL

- .1 Rock fill will be of hard, durable, evenly graded blasted stone having a maximum diameter of 300 mm in major portion of fill and a maximum diameter of 150 mm in upper 600 mm of rock fill. Fill material will contain not more than 6 percent by weight passing the 25 mm sieve. Rock fill to be evenly graded within the limits specified.
- .2 Use of shale rock or slate will not be permitted.
- .3 Only rock fill material approved by Departmental Representative will be placed. Material will be placed uniformly across full cross-section in layers not exceeding 300 mm loose depth. Use suitable earth moving and surface grading equipment to place and spread rock fill in continuous and uniform horizontal layers.

Compact rock fill after each 300 mm lift.

1.3 GRAVEL FILL

- .1 Gravel fill will consist of hard, durable, particles of stone mixed with suitable binding material. It shall be free from flat, elongated particles and shall be well graded. Top 300 mm of fill will consist of gravel fill as specified. Place gravel fill in two (2) equal lifts to minimum 95% standard proctor density. When tested by means of laboratory sieves it shall fulfill requirements as follows:

Sieve Size	% by Weight Passing
56 mm	100
16 mm	45-80
4.75mm	25-55
1.25mm	10-35
0.300 mm	5-15
0.075 mm	3-8

PART 1 GENERAL

1.1 SHOP DRAWINGS

- .1 Submit shop drawings in accordance with Section 01 33 00.
- .2 Drawings to indicate:
 - .1 Exact location of and number of line posts, corner posts, strainer posts and end posts.
 - .2 Height of posts and extension below surface.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Chain-link fence fabric: to CAN/CGSB-138.1.
 - .1 3.7mm diameter, steel wire, woven in a 50mm mesh, hot dipped galvanized (to an average of 610 g/m² after weaving).
 - .2 Height of fabric: 2.44m high.
 - .3 Top security barbed wire to manufacturer's recommendations.
- .2 Posts, braces and rails: to CAN/CGSB 138.2 galvanized steel pipe.
 - .1 Dimensions are:
 - .1 End posts - 114mm O.D. and 1.067m longer than the height of fabric.
 - .2 Line posts - 60mm O.D. and 0.838m longer than height of fabric and spaced at 2.4m.
 - .3 Bracing - 48mm O.D.
 - .4 Railing - 48mm O.D.
 - .2 Acceptable material: schedule 40 steel pipe, galvanized.
 - .3 Bottom tension wire: 610 g/m² single strand, galvanized steel wire, 5mm diameter.
 - .4 Tie wire fasteners: 3.7mm diameter aluminum.
 - .5 Fittings:
 - .1 Tension bars, tension bands, brace bands, rail ends to be fabricated from hot dipped galvanized pressed steel.
 - .6 Gate: as shown on the drawings.

PART 3 EXECUTION

3.1 PREPARATION

- .1 Inspect area for fence location to determine appropriate attachment methods.

- .2 Remove trees, vegetation, overburden and/or rock material, as required for installation of concrete footings.

3.2 ERECTION

- .1 Erect fence along lines as directed by Departmental Representative and in accordance with CAN/CGSB-138.3.
- .2 Install line and end posts as indicated on drawings.
- .3 Space line posts to accommodate a spacing of 3.3m C.C, measured parallel to the ground surface.
- .4 Install brace between end and nearest line post, placed in centre of panel and parallel to ground surface. Install braces on both sides of line posts in similar manner.
- .5 Install overhang top and caps.
- .6 Install top rail between posts and fasten securely to posts and secure waterproof caps and overhang tops.
- .7 Install bottom tension wire, stretch tightly and fasten securely to end line posts with turnbuckles and tension bar bands.
- .8 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end and line posts with tension bar secured to post with tension bar bands spaced at 300mm intervals. Knuckled selvage at bottom. Twisted selvage at top.
- .9 Secure fabric to top rails, line posts and bottom tension wire with tie wires at 450mm intervals. Give tie wires minimum of two twists.
- .10 Install gate and barbed wire as shown on the drawings and as acceptable by manufacturer and Departmental Representative.

3.3 TOUCH-UP

- .1 Clean damaged surfaces with wire brush removing loose and cracked coatings. Apply two coats of organic zinc-rich paint to damaged areas. Pre-treat damaged surfaces according to manufacturers' instructions for zinc-rich paint.

3.4 CONCRETE

- .1 Set posts in concrete having minimum compressive strength of 35MPa at 28 days. Assume a C-1 class of exposure in the mix design.

3.5 CLEANING

- .1 Clean and trim areas distributed by operations. Dispose of surplus material as directed by Departmental Representative.

END OF SECTION

Appendix A:
Environmental Reports

Phase I Environmental Site Assessment RCMP Detachment and Married Quarters Makkovik, NL

Prepared for

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by

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ACKNOWLEDGMENTS

The Phase I Environmental Site Assessment (ESA) of the RCMP Detachment and Married Quarters in Makkovik, NL was carried out on behalf of the RCMP. The environmental work was performed by the Environmental Sciences Group (ESG), Royal Military College of Canada, directed by Dr. Ken Reimer.

The 2006 site visit was carried out by ESG employee Nicole Schaffer. Logistical support before and during the field work was provided by ESG staff Leslie Carman, Karen Carter, Kathleen Francis, and Geoff Dawson.

This report was written by Trisha Soja, with contributions from Dr. Daniela Loock (project oversight and review), Jane Bailey (editing) and Bill Duffe (graphic design). Deborah Reimer and Nancy Langevin oversaw financial administration.

EXECUTIVE SUMMARY

At the request of the Royal Canadian Mounted Police (RCMP), the Environmental Sciences Group (ESG) conducted a Phase I Environmental Site Assessment (ESA) of the RCMP Detachment and Married Quarters in Makkovik, NL (Directory of Federal Real Property Numbers 01903, 68208, 13078). The RCMP-owned property in Makkovik consists of five buildings, listed in Table 1. The site inspection was conducted by ESG staff on Nov. 1 and 2, 2006.

Table 1: RCMP Property in Makkovik, NL

Assigned Region	Directory of Federal Real Property #	Lat.	Long.	Detachment	Married Quarters	Shed	Total Buildings
Makkovik Detachment 1 Seaview Crescent	01903	55.093889	-59.180833	1			5
Makkovik MQ 15 Andersen Street plus storage building	68208				1	1	
Makkovik MQ 5/7 Hettasch Rd. plus storage building	13078				1	1	

Hazardous building materials such as PCB-containing lamp ballasts, asbestos-containing material (ACM) or lead- or mercury-based paint were not identified in any of the buildings. Since the detachment trailers were constructed in 1968, ACMs and lead- or mercury-based paint are suspected. A complete assessment of the detachment trailers, including hazardous materials sampling is recommended at the time of renovation or demolition. A total of three domestic-type refrigerators and five domestic-type freezers were identified on the subject properties. According to the Federal Halocarbon Regulations, equipment containing regulated substances should be serviced, leak tested, charged and/or properly disposed of by a licenced contractor. A summary of findings and recommendations is listed in Table 2.

Table 2: Summary of Findings and Recommendations

Environmental Concerns	Report Section #	Level of Concern	Comments	Action Required
Air Emissions	4.1	Assessed	None known or observed.	None
Water and Wastewater Management	4.2	Assessed	Municipal water and sewer services are provided by the Town of Makkovik.	None
Solid Waste	4.3	Assessed	Household waste is collected and disposed of in the Town of Makkovik landfill.	None
Hazardous Waste	4.4	Assessed	No issues or concerns identified.	None
Hazardous Material Storage and Management	4.5	Compliance	No issues or concerns identified with the exception of small quantities of ammunition, pepper spray, propane tanks, and household cleaning products. All hazardous materials stored in an appropriate manner.	None
Polychlorinated Biphenyl's and Materials / Equipment	4.6	Assessed	No issues or concerns identified. <i>Original</i> fluorescent lamp ballasts inside detachment trailers were replaced around 1990.	None
Asbestos-Containing Material (ACM)	4.7	Identified	None observed therefore no samples collected. ACM may be present in detachment trailers due to age of trailers.	Assessment at time of renovation or demolition
Storage Tanks	4.8	Compliance	No issues or concerns identified.	None
Radon Emissions	4.9	Assessed	None known or observed.	None
Solid Fill Observations	4.10	Assessed	No issues or concerns identified.	None
Pesticides/Herbicides	4.11	Assessed	None known or observed.	None
Ozone-Depleting Substances	4.12	Compliance	3 domestic-type refrigerators and 5 domestic-type freezers were identified. See Appendix V for completed Halocarbon Inventory.	Federal Halocarbon Regulations require equipment to be serviced, leak tested, charged and/or properly disposed of by a licensed contractor.
Lead and Mercury Based Paint	4.13	Identified	None observed therefore no samples collected. Based on age of trailers original paint in	Assessment at time of renovation or demolition.

Environmental Concerns	Report Section #	Level of Concern	Comments	Action Required
			detachment may be lead-based. Original paint covered with new paint.	
Radioactive Materials	4.14	Assessed	None known or observed.	None
Soil Quality	4.15	Assessed	No issues or concerns identified.	None
Spill and Stain Areas	4.15	Assessed	None known or observed.	None
Sumps, Drains, Pits, Catch Basins and Lagoons	4.16	Assessed	Sump located in basement of Married Quarter at 15 Andersen St. is in good condition. No sumps at Detachment or Married Quarters 5/7 Hettasch Rd.	None
Mould	4.17	Assessed	None known or observed.	None
Surrounding Property Usage	4.18	Assessed	Surrounding properties are vacant or residential. No issues or concerns identified.	None
Environmental Emergency Response Plan	4.19	Assessed	None known or observed.	None
Urea Formaldehyde Foam Insulation	4.20	Assessed	None known or observed.	None
Other Potential Concerns	4.21	Assessed	None known or observed.	None

Table 3: Description of Each Level of Concern

Level of Concern	Comments	Typical Action
Not Assessed	Item not assessed due to a lack of access	Assess item
Assessed	Item assessed – no concerns identified	No action
Compliance	Issue in compliance with relevant regulations or RCMP guidance, ongoing management required	Continue with current course of action
Identified	Issue identified – additional work required	Create a management plan (e.g. a hazmat or ODS inventory or adding potential ACM to a building plan)
Regulated	Issue may pose a threat to human health or the environment	Plan for sampling (e.g. Phase II environmental assessment, drinking water sampling or protecting floor sumps from potential AST leak)
Non-Compliance	Issue represents an immediate threat to human health or the environment	Immediate action (e.g. a mold assessment and cleaning, high priority Phase II environmental assessment)

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1.0 INTRODUCTION

The Environmental Sciences Group (ESG) conducted a Phase I Environmental Site Assessment (ESA) of the RCMP Detachment and Married Quarters located in Makkovik, NL (Directory of Federal Real Property Numbers 01903, 68208, 13078). The location of Makkovik is given in Figure 1.

The objective of the Phase I ESA at the Makkovik, NL, RCMP properties was to:

- review available information from various sources with respect to the historical use of the property and its surroundings;
- conduct a site reconnaissance visit and collect photographic documentation;
- conduct interviews with persons knowledgeable about the subject properties' history;
- conduct hazardous materials sampling for the presence of polychlorinated biphenyls (PCBs), lead in paint, asbestos and mould, if contamination is suspected; and
- prepare this written report to summarize the findings of the ESA.

The Phase I ESA was conducted in accordance with guidelines and principles established by the Canadian Standards Association in the document Phase I Environmental Site Assessment CSA Z768-01. Work was performed in accordance with the RCMP Statement of Work and the ESG Implementation Plan dated Oct. 24, 2006.

This report presents the results of the Phase I ESA, which included observations noted during the site inspection conducted on Nov. 1 and 2, 2006, a records review, and interviews with people familiar with the subject properties. In addition, an RCMP Environmental Inventory Checklist and a Halocarbon Inventory, provided by the RCMP, were completed.



Figure 1: Site Location – Makkovik, NL (CDMTS 1963)

1.1 Scope of Work

To achieve the above objectives, the following methodology was used:

A. Records/Historical Review

ESG personnel undertook a review of existing documentation. Relevant documents included aerial photographs, survey drawings, property use records, geological maps, topographic maps, company records and regulatory information. The historical use of RCMP facilities and adjoining properties was established.

B. Site Reconnaissance Visit

The site reconnaissance visit consisted of a building and property inspection during which ESG personnel documented the current use of the property, fuel and chemical handling and storage, waste materials, and spill and stain areas. The following information was collected at each building:

- current and past uses of the premises and adjoining land;
- existing buildings and infrastructure on the premises, including heating and cooling systems, drains, sumps, sewage disposal systems, pits and lagoons, potable water sources, wastewater, wells, areas of fill and operational equipment;
- hazardous materials storage facilities, including type and quantity of hazardous materials used, industrial waste generated, processes and activities conducted, waste management practices and pre-treatment or recycling, compliance with relevant regulations and codes of practice, etc.;
- areas of potential contamination, based on the presence of stressed vegetation, stained soils, noxious odours, operational practices, etc.;
- the presence of PCBs, asbestos-containing materials, lead, ozone-depleting substances or urea foam formaldehyde insulation (UFFI); and
- the presence of above-ground and underground fuel storage tanks at the site, their compliance with Canadian Environmental Protection Act (CEPA) regulations, provincial legislation, Canadian Council of Ministers of the Environment (CCME) codes of practice and the required information for the completion of tank registration forms.

C. Interviews

Interviews were conducted with site personnel and other individuals with knowledge of the past and present operations and infrastructure in the area. This information was used to corroborate data collected from document reviews and from the site visit.

D. RCMP Checklists

ESG personnel completed the Environmental Inventory Checklist provided by the RCMP. This is included in Appendix VI of this report, and comprises an inventory of halocarbons, tanks and hazardous materials.

E. Hazardous Materials Sampling

During the site visit, ESG personnel were equipped to sample any suspected hazardous building materials (i.e. lead-based paint, asbestos and PCBs) and any visible mould. No sampling or chemical analysis of hazardous materials was carried out.

F. Written Report

Information gathered during the documentation review, site visit and interviews are compiled in this standardized report. The report includes a historical review; a summary of information collected during the reconnaissance visit, including RCMP checklists; conclusions; and recommendations made by ESG.

1.2 Limitations of Study

This Phase I ESA was conducted as per the requirements set out in the “Makkovik Phase I Environmental Site Assessment Implementation Plan - October 24, 2006,” written by ESG. The Phase I ESA was also conducted in accordance with guidelines and principles established by the Canadian Standards Association in the document Phase I Environmental Site Assessment CSA Z768-01.

The ESA reflects the condition of the buildings at the time that the inspections were completed. This situation may change with time and may deviate from these results. No sampling or chemical analysis of hazardous materials was required because no mould, asbestos or lead-based

paint was encountered. No subsurface investigations were undertaken by ESG as part of this assessment.

This report does not provide a guarantee of environmental compliance. That is the sole responsibility of the RCMP. This report is intended to provide verification of the buildings' current state to the best ability of ESG personnel using the available information and resources. ESG cannot be held responsible for environmental conditions at the site associated with information unavailable from the past/current property owner or for information not recalled by persons interviewed.

2.0 SITE DESCRIPTION

The properties under investigation are in the Town of Makkovik, NL. The RCMP-owned property consists of five buildings: the Detachment at 1 Seaview Crescent; one Married Quarters at 15 Andersen Street and one Married Quarters at 5/7 Hettasch Road, each with a storage shed associated with it (Table 1). The location of each property is identified on the air photo in Figure 2 and on the satellite image in Figure 3. Table 3 summarizes the lot, building and utility information for each property.

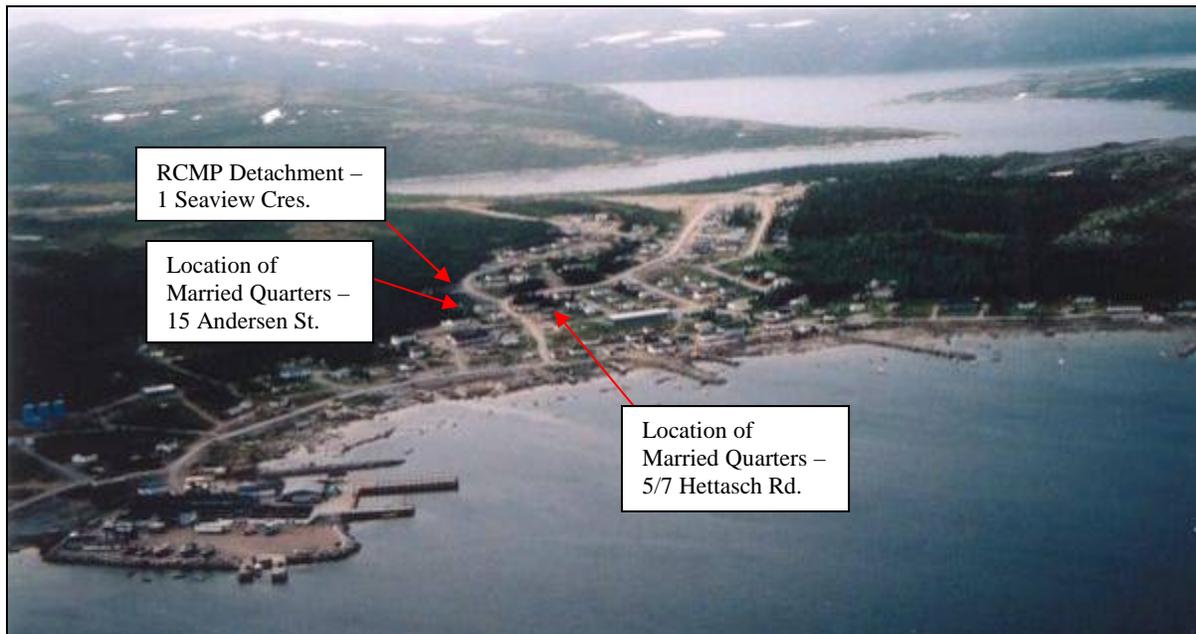


Figure 2: Property Locations –Makkovik, NL (Photo taken in 1998, before Married Quarters buildings were constructed.)

A. Detachment – 1 Seaview Cres.

The property at 1 Seaview Cres. consists of a square parcel of land plus driveway allowance, measuring approximately 4,492 m². The Treasury Board of Canada indicates that the property is designated as Directory of Federal Real Property Number (DFRP) 01903 and is currently owned by the Government of Canada with the RCMP listed as the custodian.

This property contains the RCMP Detachment, which consists of two connected trailers with a total floor area of approximately 160 m². The first trailer was built in 1968 and installed on the property in 1980. The second trailer was installed on the property at a later date. Both trailers are constructed of a wood frame with metal sheet siding exterior finish and asphalt shingles. Water, sewer and electricity services are all supplied by the Town of Makkovik, and heating in the Detachment is electric. A gravel driveway is located on the east side of the residence. The remainder of the property consists of grass-covered or forested areas.

The property is bounded to the north and west by woodlands and to the south by residential land. Seaview Cres. borders the property to the east and there are residential properties to the east across Seaview Cres. The closest water body is Makkovik Harbour, which is located approximately 400 metres east of the property. Figure 3 is the general site overview map and Figure 4 shows a site plan with photographs taken during the site visit.

B. Married Quarters – 15 Andersen St.

The property at 15 Andersen St. consists of a roughly square parcel of land measuring approximately 1,260 m². The Treasury Board of Canada indicates that the property is designated as Directory of Federal Real Property Number (DFRP) 68208 and is currently owned by the Government of Canada with the RCMP listed as the custodian.

This property comprises one Married Quarters, which consists of a one-storey home with a total floor area of approximately 147 m², plus a storage shed. The home was constructed in 2000 and the storage shed in 2002. The residence is constructed of a wood frame with vinyl siding and asphalt shingles with a full-basement concrete foundation. Water, sewer and electricity are all supplied by the Town of Makkovik, and the home is heated with an oil furnace. A gravel

driveway enters from Willow Creek Lane to the east. The remainder of the property consists of grass-covered or gravel areas.

The property is bounded to the south and west by woodlands. Willow Lane borders the property to the east and there are residential properties to the east across Willow Lane. A residential lot borders the property to the north. The closest water body is Makkovik Harbour, approximately 300 metres east of the property. The general site overview map is provided as Figure 3 and a site plan with photographs taken during the site visit is provided as Figure 5. Additional site photographs are included in Appendix VIII.

C. Married Quarters – 5/7 Hettasch Rd.

The property at 5/7 Hettasch Rd. consists of a square parcel of land measuring approximately 864 m². The Treasury Board of Canada indicates that the property is designated as Directory of Federal Real Property Number (DFRP) 13078 and it is currently owned by the Government of Canada with the RCMP listed as the custodian.

This property comprises one Married Quarters, which consists of a two-storey home with a total floor area of approximately 164 m², plus a storage shed. The home and storage shed were both constructed in 2004. The residence is constructed of a wood frame with vinyl siding and asphalt shingles, with a crawlspace concrete foundation. Water, sewer and electricity are all supplied by the Town of Makkovik and the home is heated by an oil furnace. A gravel driveway enters from Hettasch Rd. to the north. The remainder of the property consists of grass-covered or gravel areas.

The property is bounded on all sides by residential property. Hettasch Rd. borders the property to the north and there are residential properties to the north across Hettasch Rd. The closest water body is Makkovik Harbour, approximately 300 m east of the property. The general site overview map is provided as Figure 3 and a site plan with photographs taken during the site visit is provided as Figure 6. Additional site photographs are included in Appendix VIII.

Table 4: Summary of Lot, Building and Utility Information

	Detachment 1 Seaview Cres.	Married Quarters 15 Andersen St.	Married Quarters 5/7 Hettasch Rd.
Lot Information			
Lot Number	135	76 Parcel A	138
Maximum Dimensions	64 m wide x 64 m long (plus driveway)	38.0 m long x 33.99 m wide	31.38 m long x 28.73 m wide
Area	0.4492 ha	0.126 ha	0.0864 ha
Building Count	1	2 (house + storage shed)	2 (house + storage shed)
Exterior Building Information			
Age	39 yrs. (trailer constructed in 1968)	6 yrs. (built in 2000)	2 yrs. (built in 2004)
Maximum Dimensions	Each trailer – approx. 5 m wide x 20 m long	Approx. 10 m wide x 15 m long	Approx. 7 m wide x 12 m long
Number of Storeys	1	1	2
Floor Area	80 m ²	147 m ²	164 m ²
Foundation	Wood	Full concrete basement	Concrete crawlspace
Exterior Finish	Metal sheeting	Vinyl siding	Vinyl siding
Roof	Asphalt shingles	Asphalt shingles	Asphalt shingles
Lighting	Fluorescent	Incandescent	Incandescent
Storage Tanks	None currently in use. 1 former AST has been removed.	1 Above-Ground Storage Tank (AST)	1 Above-Ground Storage Tank (AST)
Interior Building Information			
Framing	Wood	Wood	Wood
Interior Finish	Painted plywood	Painted Gyproc®	Painted Gyproc®
Wall Insulation	unknown	Fiberglass	Fiberglass
Lighting	Incandescent and fluorescent	Incandescent	Incandescent
Sumps	None	1	None
Utility Information			
Water	Municipal	Municipal	Municipal
Storm Sewers	None	None	None
Sanitary Sewers	Municipal	Municipal	Municipal
Electricity	Municipal	Municipal	Municipal
Heat	Electric	Oil Furnace	Oil Furnace
Air Conditioning	None	None	None

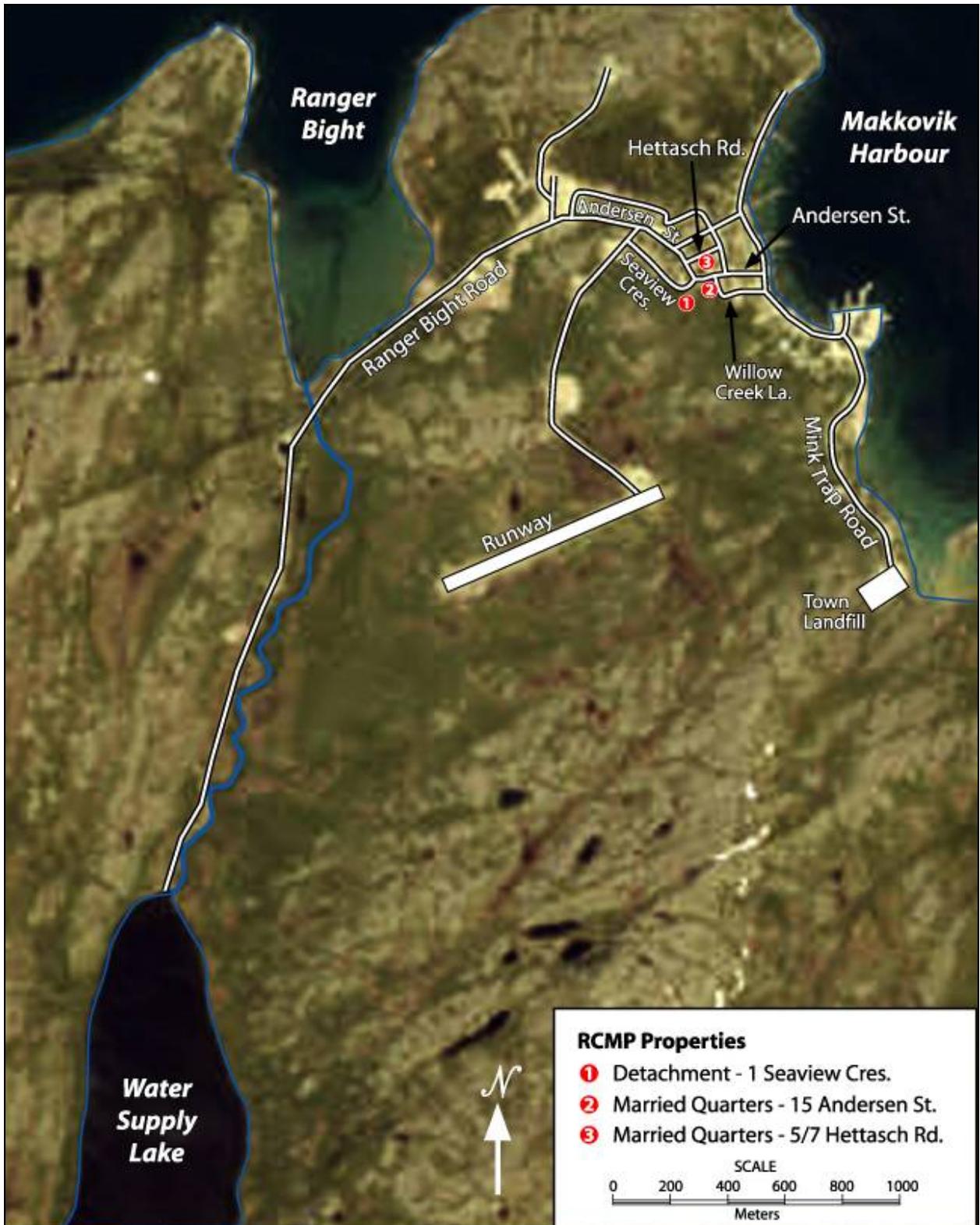


Figure 3: Property Locations –Makkovik, NL

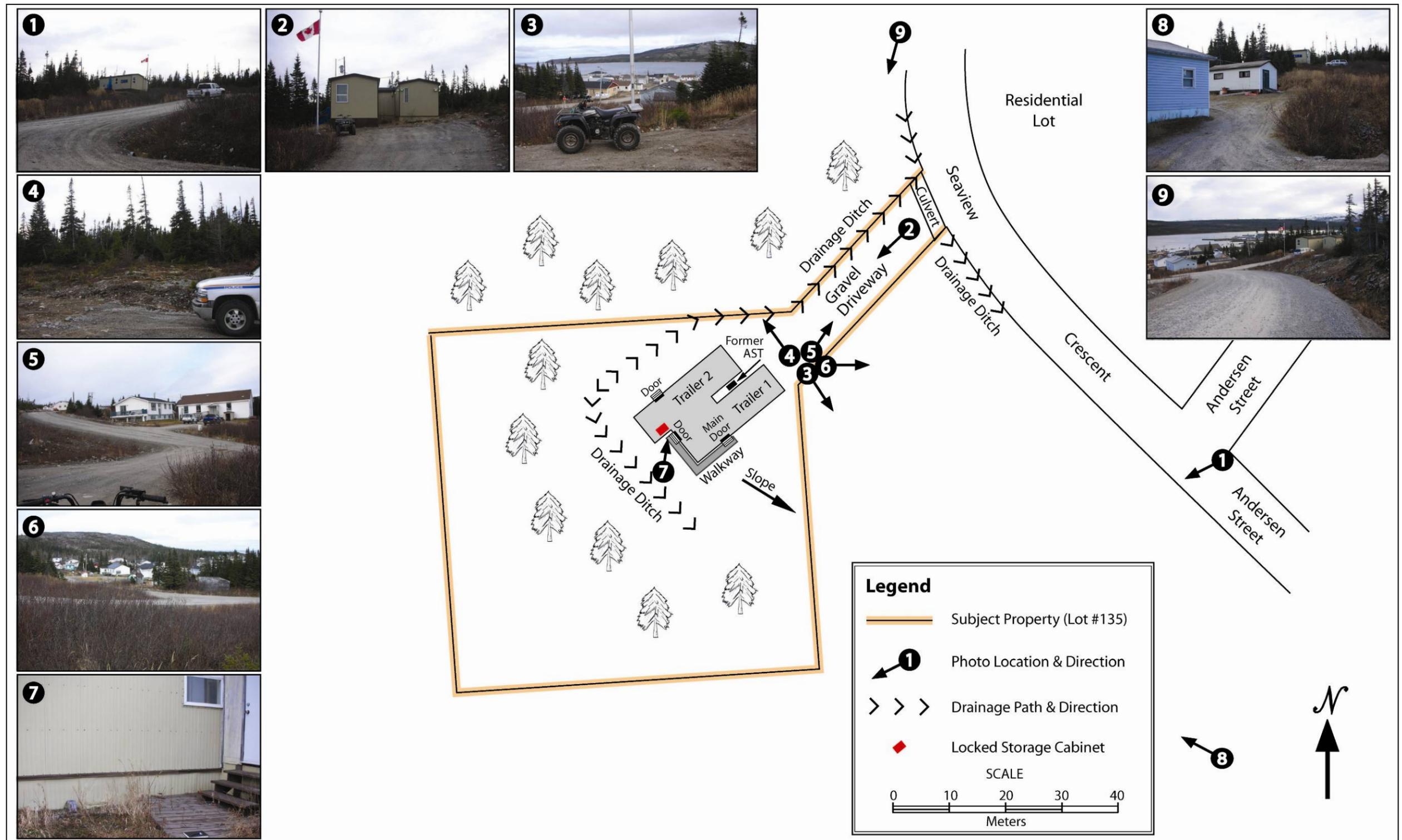


Figure 4: RCMP Detachment – 1 Seaview Cres. (Lot #135) Site Plan with Photographs

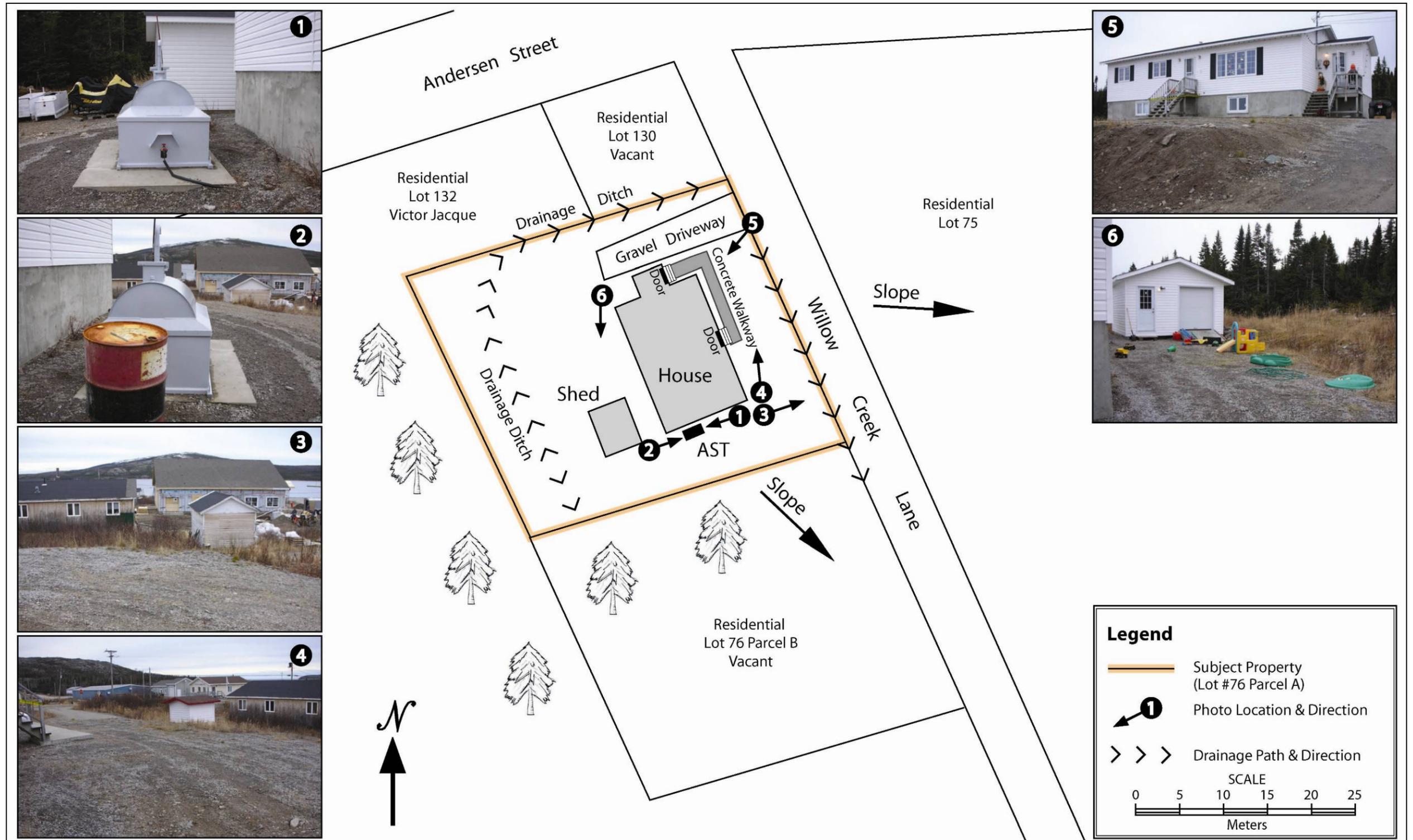


Figure 5: Married Quarters – 15 Andersen St. (Lot #76 Parcel A) Site Plan with Photographs

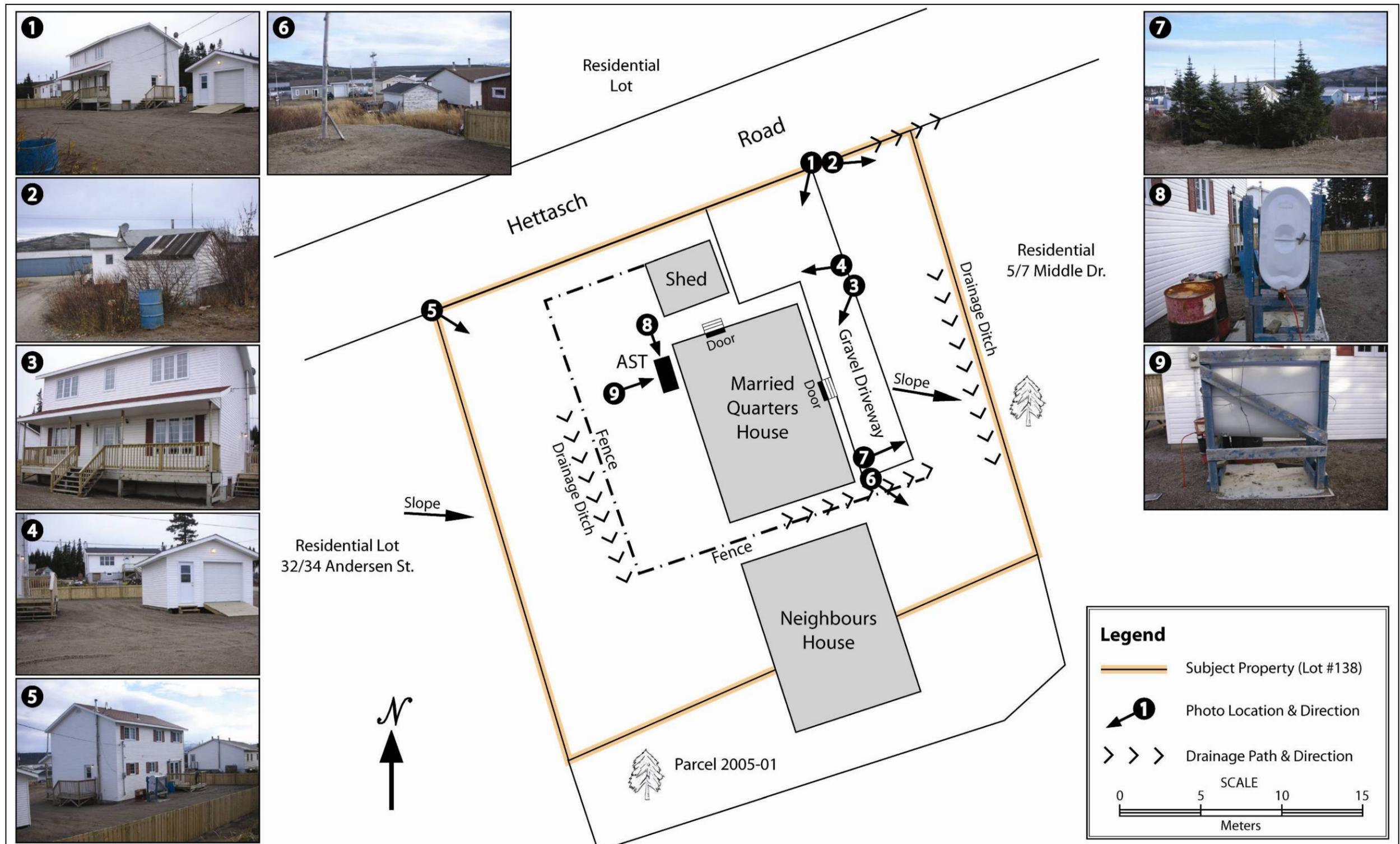


Figure 6: Married Quarters – 5/7 Hettasch Rd. (Lot #138) Site Plan with Photographs

3.0 RECORDS REVIEW

The purpose of the records review is to collect data on past activities that may have had an environmental impact at each property. Relevant documents included aerial photographs, survey drawings, property use records, geological maps, topographic maps, company records and regulatory information.

3.1 Bedrock and Surficial Geology

The geology of Makkovik was determined from the Government of Newfoundland and Labrador, Department of Mines and Energy, Geological Map of Labrador. According to the map, the town of Makkovik is located on 1,800- to 2,100-million-year-old stratified rock of the Proterozoic Eon. The rock consists of rhyolite, ash-flow tuff, breccia and hypabyssal rhyolite intrusions with volcanoclastic siltstone and sandstone and minor basalt (Wardel 1997).

Surficial geology in the vicinity consists of a thin covering of till (less than 1.5 m) over bedrock. Till was deposited by glacial action and consists of a mixture of grain sizes from clay to boulders. In some areas bedrock is exposed.

3.2 Topography and Drainage

According to the National Topographic System (NTS) Maps 13 O/3 East and West, the elevation of the properties is approximately 20 m above sea level (Figure 1). At all three properties the ground gently slopes to the east toward Makkovik Harbour, approximately 400 m downgradient (Figure 3). Surface water and groundwater also flow to the east, toward Makkovik Harbour.

3.3 Aerial Photographs

Aerial photographs are reviewed for information about present and past land use at the subject property and adjacent lands. ESG consulted the Natural Resources Canada, National Air Photo Library for available air photos of Makkovik. The following sets of air photos were available:

Table 5: Air Photos from the National Air Photo Library

Flight Line (Roll Number)	Scale	Year
A23495	70,000	1973
A13681	60,000	1953
LAB63	40,000	1950
A12361	40,000	1949
A6699	20,000	1939

None of the above air photos was useful for this Phase I ESA, as their scale was too large and the photos were outdated.

Several amateur air photos were used from the [Town of Makkovik](#) page of the Our Labrador web site. The first photo was taken from a plane showing the town of Makkovik in 1968. The photo depicts the subject properties as vacant, partially forested land. The second photo was taken from a plane showing the town of Makkovik in 1998. The location of the RCMP Detachment, at 1 Seaview Cres., is clearly visible. All adjacent land is forested and neither Married Quarters had been built at this time. The photograph shows dwellings adjacent to the future location of the Married Quarters at 5/7 Hettasch Rd. and dwellings to the north and east of the future location of the Married Quarters at 15 Andersen St.

3.4 Fire Insurance Plans

The area encompassing the subject properties is not covered by fire insurance maps.

3.5 Title Search

The Government of Newfoundland and Labrador – Department of Government Services maintains a Registry of Deeds, which includes records relevant to land ownership. A deed search was not undertaken for the subject properties and no deed documents were identified during the file review conducted at the RCMP Labrador District Headquarters in Happy Valley-Goose Bay.

3.6 Regulatory Responses

Requests were made to the Government of Newfoundland and Labrador – Department of Environment and Conservation, and the Department of Government Services to undertake a search of their records with respect to documentation of environmental issues regarding the subject properties. Information relating to the presence of petroleum storage tanks, the remediation of contaminated properties, the existence of Ministerial Orders, and the proximity of properties to former dump sites was requested. The result of this search indicated that there are no past, pending, outstanding or ongoing orders or complaints related to any matter of environmental significance on file for the properties. Written responses from the Department of Environment and Conservation and from the Department of Government Services are included in Appendix III.

3.7 RCMP File Information and Previous Reports

A file review was conducted at the RCMP Labrador District Headquarters in Happy Valley-Goose Bay, NL, in which no environmental information or previous environmental reports pertaining to the subject property were identified. Annual building inspection reports for the subject properties were reviewed and relevant information was documented.

3.8 Interviews

Interviews were conducted with the following people as part of this Phase I ESA. The interview records are presented in Appendix VII.

Table 6: Summary of Interviews

Name	Title	Phone #
Cpl. Jason Learning	Detachment Commander	709-923-2317
Mr. Barry Andersen	Local Resident	709-923-2301
Mr. Albert Ansen	Local Resident	
Mrs. Mary Andersen	Local Resident	709-923-2268
Mr. Terry Rice	Town Manager	

Corporal Jason Learning is the detachment commander and the current occupant of the Married Quarters at 15 Andersen St. Cpl. Learning provided a tour of the RCMP Detachment and

supplied site-specific information on each property. Information from Cpl. Learning is included throughout the report.

Barry Andersen has lived in Makkovik his entire life. He stated that the original detachment consisted of only the southern trailer and a second trailer was added at a later date. Mr. Andersen talked about a former AST at the detachment that was removed when the second trailer was installed. The detachment originally had copper piping that ran underneath the building and would freeze in the winter. The piping was replaced approximately 15 years ago with new pipes that run inside the detachment. The walls and lighting in the detachment were also replaced at that time. Mr. Andersen also stated that the AST at the Married Quarters on Andersen St. was installed in 2000. The tank at the Married Quarters on Hettasch Rd. is a previously used tank that was installed on this property in 2001. Mr. Andersen also talked about an oil spill that occurred in 2004 to the east of the RCMP Detachment, on the other side of Seaview Cres. This would not have affected the RCMP property, as drainage flows away from the detachment. However, the spill was large enough that the family downgradient had to leave their home for a short time. The exact volume of the spill is unknown.

Albert Ansen is a local resident who lives directly upgradient (west) of the Married Quarters on Hettasch Rd. Mr. Ansen stated that he was not aware of any spill incidents or any other type of environmental concerns on his property or in the vicinity.

Mary Andersen has lived in Makkovik her entire life. Mrs. Andersen reported that she did not know of any spill incidents or any other type of environmental concerns associated with the subject properties.

Terry Rice is the Makkovik Town Manager. Mr. Rice had no knowledge of the RCMP properties but provided information about municipal services in Makkovik. The town provides water and sewer services to all dwellings except the airport, which is too far out of town. The water supply lake is located approximately 4 km southwest of town and is treated using chlorine. Solid waste is collected by the town for disposal in the local landfill, approximately 1 km southeast of town.

4.0 ENVIRONMENTAL SUMMARY

The site visit was completed by Nicole Schaffer of the Environmental Sciences Group (ESG) on Nov. 1 and 2, 2006. Nicole was accompanied by Cpl. Learning during the site visit. The weather was clear and sunny and there was no snow on the ground. The completed RCMP Environmental Inventory Checklist is attached in Appendix IV. The following section summarizes any environmental concerns for the subject properties.

4.1 Air Emissions (indoor/outdoor)

Based on records review, the site visit and interviews, there are no known or observed sources of air emissions associated with any of the subject properties.

4.2 Water and Wastewater Management

All dwellings in Makkovik are serviced by municipal water provided by the Town of Makkovik. Water is drawn from the water supply lake located approximately 4 km southwest of town and is treated using chlorination. Sewer services are also provided by the Town of Makkovik. Surface water runoff from the properties is distributed via overland flow, as there is no storm sewer system in the Town of Makkovik. There are ditches dug around all three buildings to divert surface runoff away from them.

4.3 Solid Waste

Household waste from the Detachment and Married Quarters is collected on a regular basis by the Town of Makkovik. All solid waste is transported to the local landfill which is located approximately 1 km southeast of town.

4.4 Hazardous Waste

Based on records review, the site visit and interviews, there is no evidence of the properties ever being used for hazardous waste disposal or storage.

4.5 Hazardous Material Storage and Management

Hazardous materials identified at the Detachment included ammunition, pepper spray, propane tanks, and a small quantity of household cleaning products. In each of the Married Quarters there was a small quantity of household cleaning products. All hazardous materials were stored in an appropriate manner. Based on records review, the site visit and interviews, there is no evidence of any other hazardous material storage or management. A complete inventory of hazardous materials and toxic chemicals (including quantities and storage) is included in Appendix D: RCMP Environmental Inventory Checklist.

4.6 Polychlorinated Biphenyls (PCB) Materials/Equipment

There is no known past or current use of PCBs on the Seaview Cres. property; however, there are a number of fluorescent lamp ballasts present inside the detachment trailers. Most lamp ballast manufacturers phased out the use of PCBs in their capacitors between 1978 and 1980; therefore, any original lamp ballasts inside the trailers may contain PCBs. In an interview with Barry Andersen, he stated that all of the fluorescent lighting in the detachment was replaced around 1990. It is likely that the fluorescent lighting was purchased new at this time and it is not expected to contain PCBs.

There is no current or historical evidence of PCBs at either of the Married Quarters. The buildings were constructed in 2000 and in 2004 respectively, so there is no reason to suspect PCBs.

4.7 Asbestos-Containing Materials

Asbestos is commonly found in buildings constructed prior to 1979. There was no visible evidence of ACMs in either detachment trailer, but since the trailers were constructed in 1968 ACMs are suspected. A complete assessment at the time of renovation or demolition is recommended.

There is no current or historical evidence of asbestos-containing materials (ACMs) at the Married Quarters either on Andersen St. or on Hettasch Rd. The Married Quarters were

constructed in 2000 and in 2004 respectively, so there is no reason to suspect ACMs in construction material, such as ceiling or wall plaster, wallboards, tiles or pipe insulation.

4.8 Storage Tanks

A. Detachment – 1 Seaview Cres.

There was a former above-ground storage tank (AST) at the Detachment that was removed prior to 2000, according to Barry Andersen. This tank was used to store heating oil and its former location is noted in Figure 4. The Detachment is currently heated by electric heat.

B. Married Quarters – 15 Andersen St.

There is one AST located at the south side of the 15 Andersen St. Married Quarters (see Figure 5). This is a single-wall steel tank that was constructed and installed in 2000. The tank holds 946 litres, and is currently being used to store heating oil. Tank details are summarized in the RCMP Storage Tank Inventory included in Appendix VI.

C. Married Quarters – 5/7 Hettasch Rd.

There is one AST located at the west (back) side of the 5/7 Hettasch Rd. Married Quarters (see Figure 6). This single-wall steel tank was installed in 2004. The manufacture date of the tank is unknown, although Barry Andersen believes this was an older tank that was reused. The tank holds 910 litres and is currently being used to store heating oil. Tank details are summarized in the RCMP Storage Tank Inventory included in Appendix VI.

4.9 Radon Emissions

Emissions of radon are not known to have occurred at any of the three properties. Testing for radon gas was not completed as part of this ESA.

4.10 Solid Fill Observations

At the Detachment on 1 Seaview Cres., there was no evidence that the area had been filled or graded by other than natural causes. Driveway material is composed of natural sand and gravel (see Figure 7).



Figure 7: Photo showing the natural sand and gravel driveway at the Detachment – 1 Seaview Cres.

The Married Quarters property at 15 Andersen St. had some fresh gravel at the rear of the house (see Figure 8). At the front of the house and on the driveway there is natural sand and gravel.



Figure 8: Photo showing fresh gravel behind the Married Quarters – 15 Andersen St.

The Married Quarters property on 5/7 Hettasch Rd. had fresh gravel laid down when the building was constructed in 2004 (see Figure 9). This fill extends over the entire property.



Figure 9: Photo showing fresh gravel at the Married Quarters – 5/7 Hettasch Rd.

4.11 Pesticides/Herbicides

No information was identified during this ESA that suggests pesticides or herbicides were used on any of the three properties. Pesticide and herbicide use is uncommon in this part of Canada.

4.12 Ozone-Depleting Substances

Ozone-depleting substances (ODSs) are regulated under the Federal Halocarbon Regulations and equipment containing ODSs should be serviced, leak tested, charged and/or properly disposed of by a licenced contractor in accordance with the regulations. A Halocarbon Inventory for each property is included in Appendix IV.

A. Detachment – 1 Seaview Cres.

There is one domestic-type, bar-size refrigerator located in Trailer 1 of the Detachment that contains R-134a refrigerant.

B. Married Quarters – 15 Andersen St.

There is one domestic-type refrigerator located in the kitchen that contains R-134a refrigerant and three domestic-type freezers that also contain R-134a refrigerant.

C. Married Quarters – 5/7 Hettasch Rd.

There is one domestic-type refrigerator located in the kitchen that contains R-134a refrigerant and two domestic-type freezers located in the shed that also contain R-134a refrigerant.

4.13 Lead- and Mercury-Based Paint

Lead and mercury were used as additives in paints prior to 1978. The detachment trailers were constructed in 1968; therefore it is possible that the original paint may have contained lead or mercury. In an interview with Barry Andersen, he stated that all of the walls in the detachment were replaced and repainted around 1990. Since the original paint has been covered and there was no visible evidence of flaking or peeling paint in either trailer no paint samples were collected. A complete assessment at the time of renovation or demolition is recommended.

There is no current or historical evidence of lead- or mercury-based paint at the Married Quarters on Andersen St. or on Hettasch Rd. The Married Quarters were constructed in 2000 and in 2004 respectively; therefore there is no reason to suspect lead or mercury in any of the paint. All RCMP residences are repainted every time a new officer moves in, which is roughly every two years.

4.14 Radioactive Materials

Radioactive materials were not observed at any of the three properties, nor was there any evidence of radioactive materials resulting from historical searches, records review or interviews.

4.15 Soil Quality, Spills and Stain Areas

There were no signs of surface staining or stressed vegetation at any of the properties. The ground around each of the ASTs at each of the Married Quarters was clean and there was no evidence from historical searches, records review or interviews of any previous spills. There was no visual evidence of staining around the location of the former AST at the RCMP Detachment – 1 Seaview Cres. In his interview, Barry Andersen talked about an oil spill that occurred in 2004 to the east of the RCMP Detachment, on the other side of Seaview Cres. This spill would not have affected the RMCP property.

4.16 Sumps, Drains, Pits, Catch Basins and Lagoons

The Detachment at 1 Seaview Cres. has no sumps. The Married Quarters at 5/7 Hettasch Rd. has a crawl space with no sumps. The Married Quarters at 15 Andersen St. has one sump located in the southwest corner of the basement. A pump is used to control the water level and discharges water outside at the west (back) side of the residence. This is distributed via overland flow.

4.17 Mould

No signs of mould were observed at any of the three buildings during the site inspection. Historical searches, records review, and interviews did not uncover any historical evidence of problems associated with mould.

4.18 Surrounding Property Usage

Properties adjacent to each RCMP building are summarized in the RCMP Environmental Inventory Checklist in Appendix IV of this report. This information is also shown visually in Figures 4, 5 and 6.

A. Detachment – 1 Seaview Cres. (Figure 4)

The subject property is surrounded by vacant woodlands to the north and west. Seaview Cres. borders the property to the east, and there is a residential lot to the east across Seaview Cres. There is also a residential lot located southeast of the Detachment. The closest water body to the Detachment is Makkovik Harbour, approximately 400 m east of the subject property.

B. Married Quarters – 15 Andersen St. (Figure 5)

The subject property is surrounded by vacant woodlands to the south and west. Willow Creek Lane borders the property to the east and there is a residential lot to the east across Willow Creek Lane. There is also a residential lot north of the subject property. The closest water body to the Married Quarters at 15 Andersen St. is Makkovik Harbour, approximately 300 m east of the subject property.

C. Married Quarters – 5/7 Hettasch Rd. (Figure 6)

This property is surrounded by residential lots on all sides. Hettasch Rd. borders the property to the north and there is a residential lot to the north across Hettasch Rd. To the west (upgradient) the residential property is occupied by Albert Ansen. The closest water body to the Married Quarters at 5/7 Hettasch Road is Makkovik Harbour, approximately 300 m east of the subject property.

4.19 Environmental Emergency Response Plan

An Environmental Emergency Response Plan does not exist for this site, nor was there any evidence of past plans derived from the records review.

4.20 Urea Formaldehyde Foam Insulation Materials (UFFI)

No suspected urea formaldehyde foam insulation (UFFI) was identified, nor was there any evidence of past UFFI derived from historical searches, records review, interviews or the site visit.

4.21 Other Potential Concerns

No other potential concerns were identified for the subject properties.

The following additional items were assessed during the site visit and no concerns were identified:

- Indoor Air Quality
- Electromagnetic Fields and Frequencies
- Noise and Vibration

5.0 CONCLUSIONS AND RECOMMENDATIONS

At the request of the Royal Canadian Mounted Police (RCMP), the Environmental Sciences Group (ESG) conducted a Phase I Environmental Site Assessment (ESA) of the RCMP Detachment and Married Quarters properties in Makkovik, Labrador.

It is concluded that the subject properties may have environmental liability resulting from the following:

- Hazardous building materials such as PCBs, asbestos-containing material (ACM) or lead- or mercury-based paint were not identified in any of the buildings. Since the detachment trailers were constructed prior to 1979, ACMs and lead- or mercury-based paint are suspected. A complete assessment of the detachment at the time of renovation or demolition is recommended. The Married Quarters at 15 Andersen St. and 5/7 Hettasch Rd. were constructed in 2000 and 2004, respectively, so there is no reason to suspect these hazardous materials.
- Three domestic-type refrigerators and five domestic-type freezers were identified on the subject properties. According to the Federal Halocarbon Regulations, equipment containing regulated substances should be serviced, leak tested, charged and/or properly disposed by a licenced contractor.

6.0 REFERENCES

- Canadian Standards Association (CSA, 2001). CSA Z768-01 Phase I Environmental Site Assessment. Toronto, ON: November, 2001.
- Canadian Department of Mines and Technical Surveys, Surveys and Mapping Branch (CDMTS). 1963. *National Topographic System Map 13 J/14 W, Makkovik*. Scale 1:50000.
- Environmental Sciences Group. 2006. *Implementing Arrangement Number RMC/RCMP 003 to the Memorandum of Understanding between the Department of National Defence of Canada, the Royal Military College of Canada and the Royal Canadian Mounted Police, Phase 1 Environmental Site Assessments at Two RCMP detachments in Makkovik and Cartwright, NL*.
- Government of Canada, Treasury Board Secretariat. *Directory of Federal Real Property*. Available online at <http://www.tbs-sct.gc.ca/dfrp-rbif/introduction.asp?Language=EN> (Date accessed: October 5, 2006).
- Hydrological Setting of Labrador*. Available online at <http://www.env.gov.nl.ca/env/Env/waterres/HydMod/Hyd-Labrador/HydrolofLabra-Chap2.pdf> (Date accessed: December 6, 2006).
- The People of Labrador. 2004. *Town of Makkovik* Available online at <http://www.ourlabrador.ca/member.php?id=5> (Date accessed: December 6, 2006).
- Wardel, R.J., C.F. Gower, B. Ryan, G.A.G. Nunn, D.T. James, and A. Kerr. 1997. *Geologic Map of Labrador; Scale 1:1 million*. Government of Newfoundland and Labrador, Department of Mines and Energy, Geologic Survey, Map 97-07.

7.0 APPENDICES

Appendix A: Property Records, Plans and Mapping

Appendix B: Aerial Photographs

Appendix C: Regulatory Response

Appendix D: RCMP Environmental Inventory Checklist

Appendix E: RCMP Halocarbon Inventory

Appendix F: RCMP Storage Tank Inventory

Appendix G: Interview Records

Appendix H: Additional Site Photographs

Appendix I: Assessor Qualifications

APPENDIX A: PROPERTY RECORDS, PLANS AND MAPPING



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Detailed Results

Criteria

Keyword: makkovik

Summary

Total number of parcels	21
Total number of properties	21
Total land area (hectares)	5
Total number of buildings	6
Total building floor area (square m)	571

Sort order

Custodian

Custodian	Number of parcels
411 Canadian Broadcasting Corporation (Transmission)	1
073 Fisheries and Oceans (Coast Guard)	13
071 Fisheries and Oceans (Small Craft Harbours)	1
142 Public Works and Government Services Canada (office)	1
162 Royal Canadian Mounted Police	4
172 Transport Canada (Other)	1

Order of fields

Property number : Parcel number : Property name : Custodian : Use : Interest type [: Restriction on Interest]

[^{PAR}Parent Property Number :] [^{SIA}Street address :] [^{PIN}Place name :] [^{CENSUB}Census subdivision : ^{CEN}Census division : ^{PROV}Province : ^{FED}Federal electoral district] or [: ^{CITY}City outside Canada : ^{COUNTRY}Country outside Canada] : [^{LA}Land Area : ^{BC}Building Count : ^{FA}Floor Area : ^{PI}Parking (Interior) : ^{PE}Parking (Exterior)]

Royal Canadian Mounted Police

01903 : 00 : Royal Canadian Mounted Police : Office : Crown Owned

STA I Seaview Cres. : PIN Makkovik : CENSUB Makkovik : CENDIV Division No. 10 : PROV Newfoundland and Labrador : FED Labrador : LA 0.4492 ha : BC 1 : FA 80 m² LAT 55.09389 N : LONG -59.18083 W : CD 01903

12927 : 00 : Royal Canadian Mounted Police : Residential : Lease or Licence

STA Protected : PIN Makkovik : CENSUB Makkovik : CENDIV Division No. 10 : PROV Newfoundland and Labrador : FED Labrador : LA 0 ha : BC 0 : FA 86 m² : CD 12927

13078 : 00 : Royal Canadian Mounted Police : Residential : Crown Owned

STA Protected : PIN Makkovik : CENSUB Makkovik : CENDIV Division No. 10 : PROV Newfoundland and Labrador : FED Labrador : LA 0.8642 ha : BC 1 : FA 164 m² : CD 13078

68208 : 00 : Royal Canadian Mounted Police : Residential : Crown Owned

STA Protected : PIN Makkovik : CENSUB Makkovik : CENDIV Division No. 10 : PROV Newfoundland and Labrador : FED Labrador : LA 0.126 ha : BC 2 : FA 147 m² : CD 68208

Date Modified: 2003-11-27

DFRP Map Navigator

Zoom: 4.03 km ok

Canada
Province / territories
Metropolitan Area
Economic Region

Federal Properties
Federal Contaminated Sites

Road View
 Topographic (positioning standard)
 RNF Streets (with names)
 Google maps
 Disabled
 Standard
 Satellite
 Hybrid

Map data copyright
[Help on the map](#)

0 0.3 0.5
Kilometers

Modified: 2005-03-17 [Top of page](#) [Important Notices](#)



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du Canada

Property Number 01903 - Detachment 1 Seaview Cres.

Record Created 1990.08.08

Record Modified 2004.03.24

Portfolio Certification Date 2004.12.15

Property : parcel number 01903 : 00
Custodian Royal Canadian Mounted Police
Official Contact Jean Deschamps - (613) 993-3197
Type of interest Crown Owned
Use Office

Street address 1 Seaview Cres.
Place name Makkovik
Municipality Makkovik
Province/territory Newfoundland and Labrador
Federal electoral district Labrador
Floor Area 80 m² Building Count 1 Land Area 0.4492 ha



Latitude 55.09389 Longitude -59.18083

2005 Payments in lieu of taxes

Total	\$274
MAKKOVIK, TOWN (5437/5445-M21)	\$274

Source: PWGSC, REAL ESTATE DIVISION, Municipal Grants Information System

Source: Directory of Federal Real Property, 2006.10.05
<http://www.tbs-sct.gc.ca/dfrp-rbif/>
Date Modified: 2003-04-05

Canada



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Property Number 68208 – Married Quarters 15 Andersen St.

Record Created 2001.10.10

Record Modified 2006.01.27

Portfolio Certification Date 2004.12.15

Property : parcel number 68208 : 00
Custodian Royal Canadian Mounted Police
Official Contact Jean Deschamps - (613) 993-3197
Type of interest Crown Owned
Use Residential

Street address Protected
Place name Makkovik
Municipality Makkovik
Province/territory Newfoundland and Labrador
Federal electoral district Labrador

Floor Area 147 m² Building Count 2 Land Area 0.1260 ha
Latitude Protected Longitude Protected

Photograph
not
available

2005 Payments in lieu of taxes

Total	\$469
MAKKOVIK, TOWN (5437/5445-M21)	\$469

Source: PWGSC, REAL ESTATE DIVISION, Municipal Grants Information System

Source: Directory of Federal Real Property, 2006.10.05
<http://www.tbs-sct.gc.ca/dfrp-rbif/>
Date Modified: 2003-04-05



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du Canada

Property Number 13078 – Married Quarters 5/7 Hettasch Rd.

Record Created 2005.10.25

Record Modified 2006.02.22

Portfolio Certification Date 2004.12.15

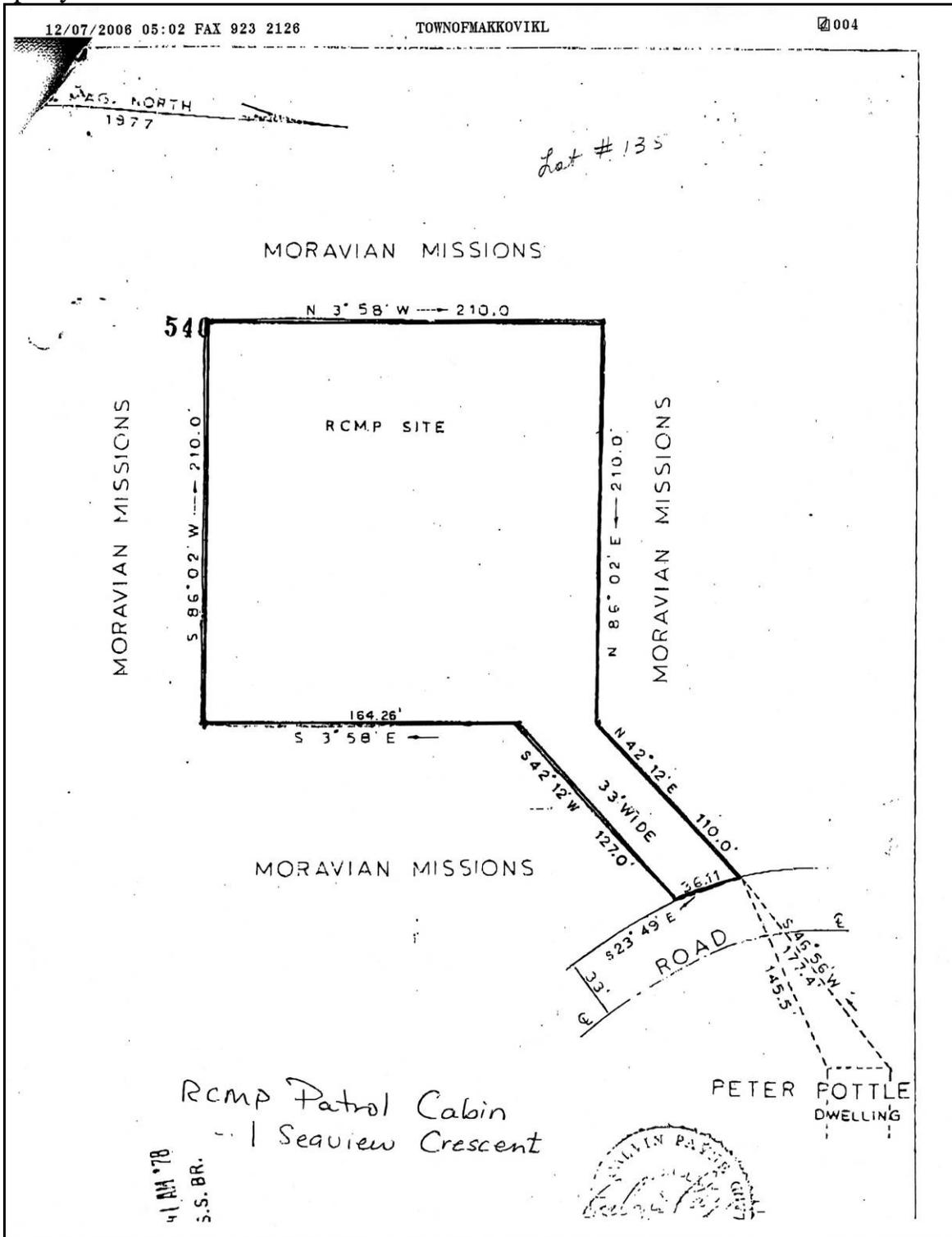
Property : parcel number	13078 : 00
Custodian	Royal Canadian Mounted Police
Official Contact	<u>Jean Deschamps</u> - (613) 993-3197
Type of interest	Crown Owned
Use	Residential
Street address	Protected
Place name	Makkovik
Municipality	Makkovik
Province/territory	Newfoundland and Labrador
Federal electoral district	Labrador
Floor Area	164 m ²
Building Count	1
Land Area	0.8642 ha
Latitude	Protected
Longitude	Protected

Photograph
not
available

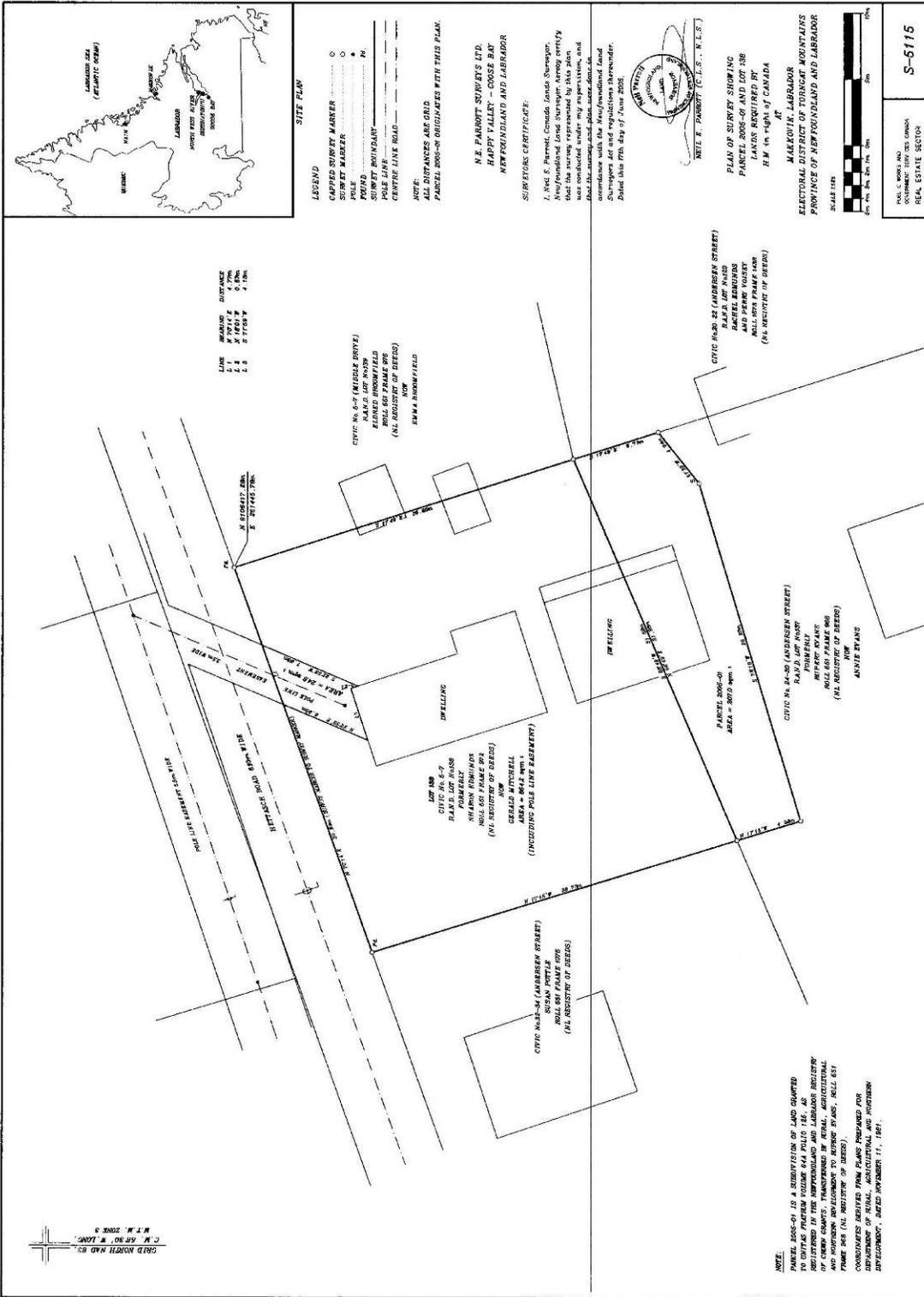
Source: Directory of Federal Real Property, 2006.10.05
<http://www.tbs-sct.gc.ca/dfrp-rbif/>
Date Modified: 2003-04-05

Canada

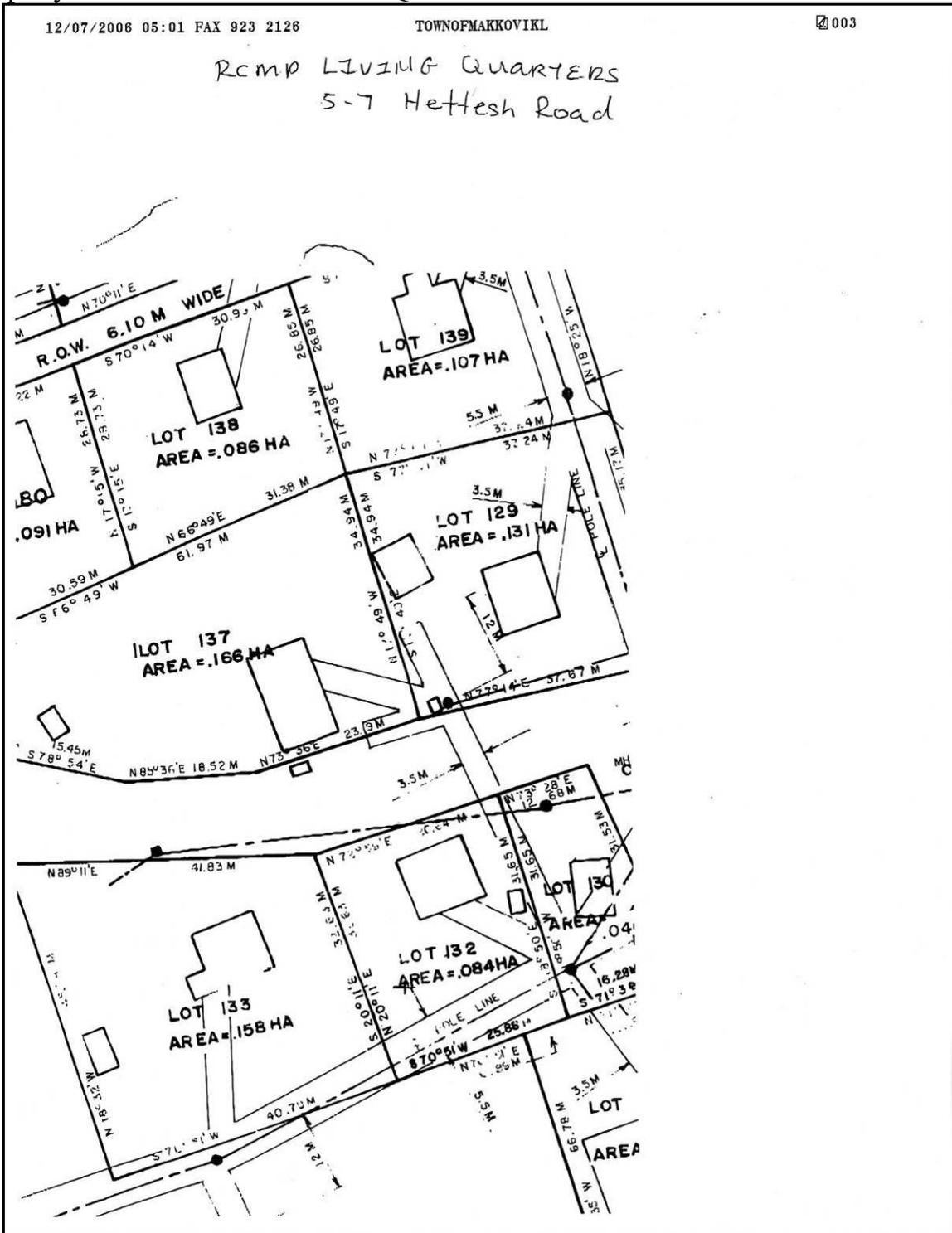
Property Number 01903 - Detachment 1 Seaview Cres.



Property Number 13078 – Married Quarters 5/7 Hettasch Rd.



Property Number 13078 – Married Quarters 5/7 Hettasch Rd.



APPENDIX B: AERIAL PHOTOGRAPHS



1968 Aerial Photo of Makkovik.



1998 Aerial Photo of Makkovik.

APPENDIX C: REGULATORY RESPONSE

Requests were made to the *Government of Newfoundland and Labrador Department of Government Services* and *Newfoundland and Labrador Department of Environment and Conservation* to undertake a search of their records with respect to documentation of environmental issues regarding the subject properties. These letters document the result of the search.



Government of Newfoundland and Labrador
Department of Government Services

December 12, 2006

Ms. Trisha Soja
Environmental Sciences Group
Royal Military College of Canada
P.O. Box 17000, Station Forces
12 Verite Avenue, Building 62
Kingston, ON
K7K 7B4

Dear Ms. Soja:

Re: File/Record Review - 1 Seaview Crescent, Makkovik, NL; 5/7 Hettask Road, Makkovik, NL; 15 Anderson Street, Makkovik, NL; 213 Main Road, Cartwright, NL; 217 Main Road, Cartwright, NL; 5/7 Paradise Extension, Cartwright, NL

The following is in response to your facsimile of December 7, 2006 requesting information of an environmental nature for the above captioned properties.

The Department of Government Services does not possess a central registry of activities affecting the environment of properties in the province. However, we state to the best of our knowledge and based on a search of the files in the possession of the Government Service Centre in Happy Valley-Goose Bay, NL, that we are not aware of any environmental concerns at the properties in question.

I would like to point out that additional information on the above properties may be obtained by contacting the Department of Environment and Conservation by telephoning (709) 729-5782. Information of an environmental nature for Labrador, prior to 1990, is located at the Department of Environment and Conservation in St. John's, NL.

The Department of Government Services makes no representations or warranties on the accuracy or completeness of the information provided.

If you have any questions or comments, please do not hesitate to contact me at (709) 896-5473.

Sincerely,

A handwritten signature in black ink that reads "Kenneth Russell".

Kenneth Russell
Environmental Protection Officer



Government of Newfoundland and Labrador
Department of Environment and Conservation

Pollution Prevention Division

Date: December 15 2006

*Environmental Science Group
Royal Military College of Canada*

Fax: 613-541-6820

Dear Ms. Soja:

**Re: Property Locations – RCMP – 1 Seaview Cres. , 5/7 Hottash Road and 15 Anderson Street -
Makkovik, NL**

**WE DO NOT GUARANTEE THE ACCURACY, COMPLETENESS, CURRENCY OR RELIABILITY OF THE
INFORMATION PROVIDED BELOW.** Any reliance on the information is at the user's own risk.

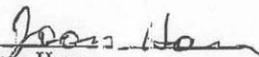
Further to your request in relation to the referenced property, a file review at the Department of Environment and Conservation office in St. John's has been carried out. The following information is provided as it relates to the Provincial Jurisdiction, subject to the above limitations.

To the best of our knowledge, there are no past, pending, outstanding or ongoing orders or complaints related to compliance nor any matter of environmental significance on file for this property.

This information has been provided in consideration of your request and in view of available records.

Your request should also be sent to our agents at the Government Services Centre for a review of their files. They can be contacted at the Department of Government Services.

If you have any further inquiries concerning this property, please contact me at Tel: 709-729-1771 or by fax: 709-729-6969; or e-mail: joanhann@gov.nl.ca.


Joan Hann
Departmental Programme Co-ordinator
Waste Management

APPENDIX D: RCMP ENVIRONMENTAL INVENTORY CHECKLIST

1. General	
Property Manager:	Kirby Ryland
Site Name:	Makkovik RCMP Detachment
Detachment Assistant:	Cpl. Dave Ferguson
Telephone:	709-923-2317
Detachment Commander:	Cpl. Jason Learning
2. Photo Checklist	
A. Outside of Detachment Front of Detachment <input checked="" type="checkbox"/> Well Cover <input type="checkbox"/> n/a Burn Barrel / Incinerator <input type="checkbox"/> n/a Septic System <input type="checkbox"/> n/a Storage Tanks and Piping <input checked="" type="checkbox"/> A/C Units [manufacturer tags] <input type="checkbox"/> n/a Adjacent properties <input checked="" type="checkbox"/>	B. Inside of Detachment Halocarbon System(s) <input type="checkbox"/> Water Treatment System <input type="checkbox"/> n/a Storage Tanks and Piping <input type="checkbox"/> n/a Floor Drains <input type="checkbox"/> n/a A/C Units [manufacturer tags] <input type="checkbox"/> n/a
3. Site Visit Inventory	
A1. Adjacent Properties: Current Use of Properties	
1. Commercial 2. Recreational 3. Vacant/Open 4. Industrial 5. Agricultural 6. Other: Residential	
Current land use in bold	Description (See sketches of each site attached)
1. Detachment – 1 Seaview Cres. (refer to Figure 4 for photos)	
North: 1 2 3 4 5 6	Woodlands (Photo #1, Photo #4)
East: 1 2 3 4 5 6	Residential (Photo #5, Photo #6)
South: 1 2 3 4 5 6	Residential (Photo #3, Photo #6, Photo #9)
West: 1 2 3 4 5 6	Woodlands (Photo #1, Photo #2, Photo #9)
2. Married Quarters – 15 Andersen St. (refer to Figure 5 for photos)	
North: 1 2 3 4 5 6	Residential (Photo #4)
East: 1 2 3 4 5 6	Residential (Photo #2, Photo #3, Photo #4)
South: 1 2 3 4 5 6	Woodlands (Photo #6)
West: 1 2 3 4 5 6	Woodlands (Photo #1, Photo #5, Photo #6)
3. Married Quarters – 5/7 Hettasch Rd. (refer to Figure 6 for photos)	
North: 1 2 3 4 5 6	Residential
East: 1 2 3 4 5 6	Residential (Photo #2, Photo #6, Photo #7)
South: 1 2 3 4 5 6	Residential (Photo #1, Photo #5)
West: 1 2 3 4 5 6	Residential (Photo #4)
B. Buildings and Works On-Site:	
Number of buildings on-site: 3	Date of Construction: see below
Notes:	
1. Detachment trailers built in 1968 and installed on property in 1980 (Photos DSCN0805.jpg, DSCN0806.jpg) 2. Married Quarters – 15 Andersen St. - House built in 2000 (Photos DSCN0828.jpg, DSCN0835.jpg) - Storage shed built in 2002 (Photo DSCN0829.jpg) 3. Married Quarters – 5/7 Hettasch Rd. - House built in 2004 (Photos DSCN0817.jpg, DSCN0820.jpg, DSCN0842.jpg) - Storage shed built in 2004 (Photo DSCN0817.jpg, DSCN0818.jpg, DSCN0821.jpg)	

C. Hazardous Materials / Toxic Chemicals On-Site:				
Item	Quantity	Storage	MSDS	Disposal Method
Ammunition	100 rounds	Locked gun locker	Yes	
Tear Gas	none			
Pepper Spray	4 cans	Locked gun locker	Yes	
Flares	none			
Explosives	none			
Gasoline	none			
Burn Barrel/ Incinerator	none			
Storage Drums	none			
Propane Tanks	2	Personal (BBQ tanks)	No	
Fuel Storage Tanks	2	1 - Married Quarters (Andersen St.) 1 - Married Quarters (Hettasch Rd.)	No	
Breathalyzer Ampoules	None			
Data Master Ethyl Alcohol	None			
Blood Samples	None			
Sharps	None			
Liquid fertilizer	None			
Large Quantity of Alcohol	None			
Drugs	None			
Glycol	None			
PCBs (transformers/ capacitors/ light ballasts)	None			
Asbestos	Detachment – unknown, none visible Married Quarters – none			
Urea Formaldehyde	Detachment – unknown, none visible Married Quarters – none			
Lead (paint/pipes)	Detachment – unknown, none visible Married Quarters – none			
Radon Testing	None			
Other:	None			

<p><i>D. Interviews</i></p>
<p><i>1. Is there evidence of underground storage tanks (USTs) on-site? NO</i></p> <p>Were the USTs removed? n/a</p> <p>When? n/a</p> <p>Was there a report? n/a</p> <p>Was there any spill/leak evidence? n/a</p> <p>Have the tanks ever been tested for leaks? n/a</p>
<p><i>2. Is there evidence of aboveground storage tanks (ASTs) on-site? YES</i></p> <p>1. Detachment – historical evidence of an AST removed before 2000 but no AST currently in use</p> <p>2. Married Quarters (Andersen St.) – 1 AST currently in use (Photos DSCN0822.jpg, DSCN0823.jpg, DSCN0824.jpg, DSCN0825.jpg, DSCN0832.jpg, DSCN0833.jpg)</p> <p>3. Married Quarters (Hettasch Rd.) – 1 AST currently in use (Photos DSCN0842.jpg, DSCN0874.jpg, DSCN0875.jpg, DSCN0876.jpg, DSCN0877.jpg, DSCN0878.jpg)</p> <p>When were the ASTs removed? It is not know what year the AST at the detachment was removed.</p> <p>Was there a report? no</p> <p>Was there any spill/leak evidence? no</p> <p>Have the tanks ever been tested for leaks? unknown</p>
<p><i>3. Is there evidence of barrels or drums on-site? YES</i></p> <p>1. Detachment – none</p> <p>2. Married Quarters (Andersen St.) – 1 barrel</p> <p>3. Married Quarters (Hettasch Rd.) – 2 barrels</p> <p>How long has the barrel been in use? unknown</p> <p>What items are stored in the drum? Used to transfer fuel</p>
<p><i>4. Is there other evidence in records or other materials collected that cause concern? NO</i></p>
<p><i>5. Is there evidence of environmental hazards on adjacent sites? NO</i></p> <p>Describe: no known or historical hazards</p> <p>Locate the hazard on the site sketch. n/a</p> <p>Is the hazard upslope or downslope of the detachment? n/a</p>
<p><i>6. Is there a history of environmental problems in the area? NO</i></p>

No occurrences known at Detachment or at either Married Quarters.

7. What is the source of Potable Water?

- Municipal -
- Drilled Well
- Bottled Water (Store bought / Filled from other source)
- Dug Well
- Other:

Method of Payment for Bottled water: n/a

Location of Water Source: Water supply lake located approx. 2 km south of town.

Description of water treatment on site: Municipal water is treated with chlorine and is safe for drinking.

Complaints from occupants (aesthetic, odour, fixtures, etc.): none

Date & result of last water test: n/a

8. What is the system of Domestic Waste?

- Municipal Sewer
- Septic

Location of Septic Bed: n/a

Date of last pumping: n/a

Other notes:

9. What current options are available for Solid Waste?

	<i>Detachment</i>	<i>Municipality</i>
Regular Waste	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Refundable Recycling	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Recycling (aluminium and tetra-packs only)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Compost (organics)	<input type="checkbox"/>	<input type="checkbox"/> n/a
Batteries	<input type="checkbox"/>	<input type="checkbox"/> n/a

Are there blue and green bins in the Detachment or Married Quarters? no

<p>E. Storage Tanks</p> <p>1. Is there an Emergency Generator on-site?</p> <p>YES: <input checked="" type="checkbox"/> NO: <input type="checkbox"/> Fuel / Battery Operated 2 HP Craftsman Generator at Married Quarters (Andersen St.) (Photo DSCN0904.jpg)</p> <p>Is there a Maintenance or Test Log? no</p> <p>What is the last log date and result? n/a</p> <p>If fuel generated:</p> <p>Indicate if the tank is connected to the generator. YES Complete a Storage Tank Data Sheet and take photos.</p>
<p>F. ENVIRONMENTAL ASSESSMENT INFORMATION</p> <p>1. Is the property located on or close to any ecologically sensitive areas (i.e.: wetlands, flood plains, scenic areas, National or Provincial Parks, etc.)? YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/></p> <p>If YES, describe and provide location: Site is located in the town of Makkovik. The only environmental receptor in the area is the harbour, which is 300 m down gradient from the site.</p>
<p>2. Is surface water located within 30m of the project site: YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/></p> <p>If YES, describe (i.e.: wetland, pond, river, stream, etc.)</p>
<p>3. Does the site have storm sewers to handle drainage or does it rely on surface run-off?</p> <p>Storm sewers YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/> Surface run-off YES: <input checked="" type="checkbox"/> NO: <input type="checkbox"/></p> <p>Locate:</p> <ul style="list-style-type: none">● Paved surfaces: none● Ditches (direction of drainage): drainage ditches around all buildings● storm water drains and manholes: none
<p>4. Is there visual evidence of vegetative stress on-site? YES: <input type="checkbox"/> NO: <input checked="" type="checkbox"/></p> <p>If YES, describe:</p>
<p>5. Is there visual evidence of local fauna on-site? YES: <input checked="" type="checkbox"/> NO: <input type="checkbox"/></p> <p>If YES, describe (i.e.: nests, feeding routes, etc.): RCMP detachment is located adjacent to a wooded area. During the site visit it was noted that many animals live within this wooded area. In his interview Barry Andersen spoke of black bears, polar bears (uncommon), caribou, fox, and rabbits.</p>
<p>G. ADDITIONAL COMMENTS / POTENTIAL ENVIRONMENTAL CONCERNS: n/a</p>

TANK INVENTORY INFORMATION				
Tank Information	Tank 1	Tank 2	Tank 3	Tank 4
ULC NO.	UCL-S602	UCL-S653, UCL-S601		
Location	Married Quarters - 5/7 Hettasch Road	Married Quarters - 15 Andersen St.		
Status	Active	Active		
Fuel Type	Heating Oil	Heating Oil		
Construction	Single Wall	Single Wall		
Material	Steel	Steel		
Placement (AST/UST)	AST	AST		
Manufacture Date	unknown	2000		
Leak/Spill Evidence	none	none		
Tank Platform	concrete	concrete		
PIPING				
Material	copper	copper		
Secondary Containment	double walled piping	double walled piping		
Placement	aboveground & underground	aboveground & underground		
Other				
Potential Site Sensitivities	none	none		
# of Monitor wells (MW)	none	none		
Proximity to MWs	n/a	n/a		
SECURITY				
Tank Enclosure	no	no		
Enclosure Locked	n/a	n/a		
Fill Pipe Locked	no	no		

APPENDIX E: RCMP HALOCARBON INVENTORY

Room	Equipment Type	Equipment Description	Manufacturer & Date	Installation Date	Model / Serial #	Capacity (btu/hr, tonnes, kW)	ODS Type	Log Book Present?	Total Quantity ODS
Married Quarters 5/7 Hettasch Rd – Kitchen	Refrigerator		Frigidaire 2004		EME60HZ		R-134a		
Married Quarters 5/7 Hettasch Rd – Storage Shed	Freezer		Woods 2004				R-134a		
Married Quarters 5/7 Hettasch Rd – Storage Shed	Freezer		Kenmore 2004				R-134a		
Married Quarters 15 Andersen St	Refrigerator						R-134a		
Married Quarters 15 Andersen St	Freezer						R-134a		
Married Quarters 15 Andersen St	Freezer						R-134a		

E-1

Room	Equipment Type	Equipment Description	Manufacturer & Date	Installation Date	Model / Serial #	Capacity (btu/hr, tonnes, kW)	ODS Type	Log Book Present?	Total Quantity ODS
Married Quarters 15 Andersen St	Freezer						R-134a		
Detachment 1 Seaview Cres.	Refrigerator	Small bar fridge	Whrilpool		EL05CCX M8		R-134a		

- Determine if A/C units are greater than 19kW (5.5 tonnes or 65,000 btu/hr)
- Record all tag information from refrigerators, freezers and water coolers
- Note if coolant system is in good shape (lines not rusted or leaking)
- Who services this equipment (contact number)?
- Have there been disposals?
- Are there service/test/disposal files (get copies)? Y / N

APPENDIX F: RCMP STORAGE TANK INVENTORY

Tank Information		15 Andersen St.
ULC	UCL S653, ULC S601	
EC Tank ID		
Photos Taken	DSCN0822.jpg, DSCN0823.jpg, DSCN0824.jpg, DSCN0825.jpg, DSCN0832.jpg, DSCN0833.jpg	
Is Tank Reportable?	Yes	
Location	On west side of house	
Status	Active Inactive Disposed Unknown	
Fuel Type	Aviation/Jet Fuel Diesel Heating Oil Propane Waste Oil Other	
Cathodic Protection	Present Absent Unknown	
Construction	Single Wall Double Wall Unknown	
Material	Steel Fibreglass Concrete Other	
Leak Detection	Automatic tank gauge Interstitial leak detection Inventory control (manual dipping) Monitoring Wells None Portable Detector Precision Leak Test Vacuum Floor Unknown	
Overfill Protection	None Alarm Only Alarm with Pump Interlock Level Gauge Mechanical Shut-off Vent Float Shut-off Unknown Audible alarm including vent Audible and visual alarm Level gauge with audible alarm Vent Float Shut-off with audible alarm	
Placement	Aboveground horizontal Aboveground vertical Underground	
Year of Installation	2000	

Manufacture Date	2000
Capacity (L)	946 L
Corrosion Protection	yes
Base Type	Concrete pad
Internal Lining	Yes No Unknown
Secondary Containment	None Soil Embankment Concrete embankment/steel dyke Embankment with impermeable layer Vault Double-walled tank Steel tray Other Unknown Steel Reservoir Vacuum seal None/earth only Self-contained steel tank
VOC Control	None Vapour Return Line Unknown
Leak/Spill Evidence	none
Comments	
PIPING	
Cathodic Protection	Present Absent Unknown No
Material	Copper Enviroflex
Secondary Containment	Spillbox Protex Enviro Line Soil Embankment Double walled piping
Construction	Soft copper pipe with plastic outer coating
Leak Detection	None Visual Inspection Interstitial space
Placement	Aboveground Underground Both Unknown
Pump Information	
Pump(s) Description	
Leak Detection	
Secondary Containment	
Manufacturer	
Other	
Potential Site Sensitivities	None
Proximity to Site Sensitivities	n/a
# of MWs	None
Proximity to MWs	n/a

Tank Information 5/7 Hettasch Road	
ULC	ULC-S602
EC Tank ID	
Photos Taken	DSCN0842.jpg, DSCN0874.jpg, DSCN0875.jpg, DSCN0876.jpg, DSCN0877.jpg, DSCN0878.jpg
Is Tank Reportable?	yes
Location	Behind house
Status	Active Inactive Disposed Unknown
Fuel Type	Aviation/Jet Fuel Diesel Heating Oil Propane Waste Oil Other
Cathodic Protection	Present Absent Unknown
Construction	Single Wall Double Wall Unknown
Material	Steel Fibreglass Concrete Other
Leak Detection	Automatic tank gauge Interstitial leak detection Inventory control (manual dipping) Monitoring Wells None Portable Detector Precision Leak Test Vacuum Floor Unknown
Overfill Protection	None Alarm Only Alarm with Pump Interlock Level Gauge Mechanical Shut-off Vent Float Shut-off Other Unknown Audible alarm including vent Audible and visual alarm Level gauge with audible alarm Vent Float Shut-off with audible alarm
Placement	Aboveground horizontal Aboveground vertical Underground
Year of Installation	2004
Manufacture Date	Unknown

Capacity (L)	910 L
Corrosion Protection	yes
Base Type	Concrete pad
Internal Lining	Yes No Unknown
Secondary Containment	None Soil Embankment Concrete embankment/steel dyke Embankment with impermeable layer Vault Double-walled tank Steel tray Other Unknown Steel Reservoir Vacuum seal None/earth only Self-contained steel tank
VOC Control	None Vapour Return Line Unknown
Leak/Spill Evidence	none
Comments	
PIPING	
Cathodic Protection	Present Absent Unknown No
Material	Copper Enviroflex
Secondary Containment	Spillbox Protex Enviro Line Soil Embankment Double walled piping
Construction	Soft copper pipe with plastic outer coating
Leak Detection	None Visual Inspection Interstitial space
Placement	Aboveground Underground Both Unknown
Pump Information	
Pump(s) Description	
Leak Detection	
Secondary Containment	
Manufacturer	
Other	
Potential Site Sensitivities	None
Proximity to Site Sensitivities	n/a
# of MWs	None
Proximity to MWs	n/a

APPENDIX G: INTERVIEW RECORDS

Interview #1	
Contact Person: Cpl. Jason Learning Position: Detachment Commander Phone: office 709-923-2317, home 709-923-2345	Completed by: Nicole Schaffer Site Name: Makkovik RCMP Detachment Date: November 1, 2006
<u>General Questions</u> How is the facility powered? How is the facility heated? In what year was the facility constructed? Has the facility been moved and/or remodeled?	Hydro Oil Detachment built in 1980. Consists of 2 trailers. Trailers moved to current location in 1980.
<u>Underground Storage Tanks (USTs)</u> Are there or have there ever been USTs on site? Were the USTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?	None known or observed.
<u>Above-ground Storage Tanks (ASTs)</u> Are there or have there ever been ASTs on site? Were the ASTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?	There was an AST at detachment used for oil. (location shown on drawing of detachment) Tank was removed. Date unknown. No report. No spill evidence. 1 AST at each MQ. No spill evidence at either.
<u>General Fuel Storage and Handling</u> Is there or has there ever been any storage of oils and/or other fuels (i.e. coal, kerosene) on site? Are there or have there ever been any barrels or drums on site? Are they in use? How long have they been used? What items are stored in the drum(s)? Have there ever been any hazardous spills (oil, fuel) that may have occurred?	1 barrel at MQ Andersen St, 2 barrels at MQ Hettasch St. None known, none observed
<u>Spill and Stain Areas</u> Is there or has there ever been any staining or stressed vegetation in the area? If yes describe.	None known, none observed
<u>Emergency Generator</u> Is there an emergency generator on site? Is the generator fuel or battery operated? Is the tank connected to the generator? Where is the generator stored? Is there a maintenance log or test log? What is the last log date and result?	1 generator at MQ Andersen St. Fuel operated Yes Storage shed
<u>Chemicals</u> Are there or have there ever been any chemicals stored and/or used on site? Have there ever been pesticides/herbicides used on the property and/or adjoining properties?	Household cleaning products None known, none observed
<u>Lead</u> Are you aware of any lead paint used on the site? If so, do you know if non-lead-based paint has been painted over the lead-based paint? What is the condition of the paint? Were lead acid batteries used at the site? If so, how were they disposed of?	None known, none observed Original wall has been covered with a second layer of wood and painted. Paint is in good condition.
<u>Mercury</u> Has there ever been mercury-containing material on site?	None known, none observed

<p><u>Polychlorinated Biphenyls (PCBs)</u> Are there any PCBs associated with the facility (i.e. transformers or florescent lights)?</p>	<p>None known, none observed</p>
<p><u>Asbestos-Containing Materials</u> Are there any asbestos-containing materials on site? If so, what/where? Is the asbestos friable or non-friable? What is the condition of the asbestos?</p>	<p>Original detachment trailers may contain asbestos. None visible.</p>
<p><u>Urea Formaldehyde Foam Insulation (UFFI)</u> Are there any UFFI containing materials on site?</p>	<p>None known, none observed</p>
<p><u>Ozone-Depleting Substances (ODSs)</u> Are there any ODSs on site? If so what/where, etc?</p>	<p>None known</p>
<p><u>Mould Concerns</u> Are there any mould issues in the buildings? Any other type of air quality problems associated with the building?</p>	<p>None known, none observed None known, none observed</p>
<p><u>Drinking Water</u> What is the source of potable water? (i.e. municipal, drilled well, dug well, bottled water, other) If bottled water, what is the method of payment? Location of water source? Description of water treatment. Have there any been any complaints about the quality of water? (i.e. aesthetic, odour, fixtures, etc) When was the water last tested?</p>	<p>Municipal water Water supply lake located 2 km south of town Municipal treatment with chlorine. None known.</p>
<p><u>Domestic Wastewater</u> What is the system of domestic wastewater treatment? (i.e. municipal sewer, septic) Where is the septic bed located? When was the septic tank last pumped? Where are the wastewater discharge facilities? Does the site have storm sewers to handle drainage or does it rely on surface runoff?</p>	<p>Municipal sewer Surface runoff</p>
<p><u>Solid Waste</u> What current options are available of the disposal of solid waste? (regular waste, refundable recycling, recycling, compost, batteries) Are there blue and green bins in the detachment?</p>	<p>Municipal collection of regular waste</p>
<p><u>Air Emissions</u> Is there any air emissions associated with the facility?</p>	<p>None known.</p>
<p><u>Environmental Concerns</u> Is the property located on or close to any ecologically sensitive areas (i.e. wetlands, flood plains, scenic areas, National or Provincial Parks)? Are you aware of any other environmental concerns related to the subject property? Is there a history of environmental problems in the general area? (i.e. flooding) Is there or has there ever been evidence of environmental hazards on adjacent properties?</p>	<p>No None known, none observed No leaks/flooding in MQ on Andersen St. None known, none observed</p>

Interview #2	
<p>Contact Person: Mr. Barry Andersen Position: Local Resident Phone: 709-923-2301 Notes: Has lived in Makkovik his entire life.</p>	<p>Completed by: Nicole Schaffer Site Name: Makkovik RCMP Detachment Site ID: Date: November 1, 2006</p>
<p><u>General Questions</u> How is the facility powered? In what year was the facility constructed? Has the facility been moved and/or remodeled?</p>	<p>The original detachment (est. 1980) consisted of only the southern trailer. A second trailer was added at a later date. The detachment originally had copper piping which ran underneath the building and would freeze in the winter. The piping was replaced approx. 15 years ago with new pipes that run inside the detachment.</p>
<p><u>Underground Storage Tanks (USTs)</u> Are there or have there ever been USTs on site? Were the USTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?</p>	
<p><u>Above-ground Storage Tanks (ASTs)</u> Are there or have there ever been ASTs on site? Were the ASTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?</p>	<p>There was an AST used at the detachment. This tank was removed before 2000. The tank at MQ (Andersen St.) was installed in 2000. The tank at MQ (Hettasch Rd.) was installed in 2004. This was an older tank.</p>
<p><u>General Fuel Storage and Handling</u> Is there or has there ever been any storage of oils and/or other fuels (i.e. coal, kerosene) on site? Are there or have there ever been any barrels or drums on site? Are they in use? How long have they been used? What items are stored in the drum(s)? Have there ever been any hazardous spills (oil, fuel) that may have occurred?</p>	<p>There was an oil spill east of the RCMP detachment (see map) 2 years ago. This would not have affected the RCMP property as drainage flows away from the detachment. The spill was large enough that the family down gradient had to leave their home for a short time.</p>
<p><u>Spill and Stain Areas</u> Is there or has there ever been any staining or stressed vegetation in the area? If yes describe.</p>	<p>See <u>General Fuel Storage and Handling</u> above.</p>
<p><u>Emergency Generator</u> Is there an emergency generator on site? Is the generator fuel or battery operated? Is the tank connected to the generator? Where is the generator stored? Is there a maintenance log or test log? What is the last log date and result?</p>	
<p><u>Chemicals</u> Are there or have there ever been any chemicals stored and/or used on site? Have there ever been pesticides/herbicides used on the property and/or adjoining properties?</p>	
<p><u>Lead</u> Are you aware of any lead paint used on the site? If so, do you know if non-lead-based paint has been painted over the lead-based paint? What is the condition of the paint? Were lead acid batteries used at the site? If so, how were they disposed of?</p>	<p>Walls in the detachment were replaced and repainted approx. 15 yrs ago when piping was replaced.</p>

<p><u>Mercury</u> Has there ever been mercury-containing material on site?</p>	
<p><u>Polychlorinated Biphenyls (PCBs)</u> Are there any PCBs associated with the facility (i.e. transformers or fluorescent lights)?</p>	<p>All lighting in the detachment was replaced approx. 15 yrs ago when piping was replaced.</p>
<p><u>Asbestos-Containing Materials</u> Are there any asbestos-containing materials on site? If so, what/where? Is the asbestos friable or non-friable? What is the condition of the asbestos?</p>	
<p><u>Urea Formaldehyde Foam Insulation (UFFI)</u> Are there any UFFI-containing materials on site?</p>	
<p><u>Ozone-Depleting Substances (ODSs)</u> Area there any ODSs on site? If so what/where, etc?</p>	
<p><u>Mould Concerns</u> Are there any mould issues in the buildings? Any other type of air quality problems associated with the building?</p>	
<p><u>Drinking Water</u> What is the source of potable water? (i.e. municipal, drilled well, dug well, bottled water, other) If bottled water, what is the method of payment? Location of water source? Description of water treatment. Have there any been any complaints about the quality of water? (i.e. aesthetic, odour, fixtures, etc) When was the water last tested?</p>	
<p><u>Domestic Wastewater</u> What is the system of domestic wastewater treatment? (i.e. municipal sewer, septic) Where is the septic bed located? When was the septic tank last pumped? Where are the wastewater discharge facilities? Does the site have storm sewers to handle drainage or does it rely on surface runoff?</p>	
<p><u>Solid Waste</u> What current options are available of the disposal of solid waste? (regular waste, refundable recycling, recycling, compost, batteries) Are there blue and green bins in the detachment?</p>	
<p><u>Air Emissions</u> Are there any air emissions associated with the facility?</p>	
<p><u>Environmental Concerns</u> Is the property located on or close to any ecologically sensitive areas (i.e. wetlands, flood plains, scenic areas, National or Provincial Parks)? Are you aware of any other environmental concerns related to the subject property? Is there a history of environmental problems in the general area? (i.e. flooding) Is there or has there ever been evidence of environmental hazards on adjacent properties?</p>	<p>See <u>General Fuel Storage and Handling</u> above.</p> <p>Additional Information: Wildlife in the area include: black bear, polar bear (quite uncommon), caribou, fox, and rabbits.</p>

Interview #3	
<p>Contact Person: Mr. Albert Ansen Position: Local Resident Phone: Notes: Lives directly up gradient (north-east) of MQ (Hettasch Rd.)</p>	<p>Completed by: Nicole Schaffer Site Name: Makkovik RCMP Detachment Site ID: Date: November 1, 2006</p>
<p><u>General Questions</u> How is the facility powered? In what year was the facility constructed? Has the facility been moved and/or remodeled?</p>	
<p><u>Underground Storage Tanks (USTs)</u> Are there or have there ever been USTs on site? Were the USTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?</p>	
<p><u>Aboveground Storage Tanks (ASTs)</u> Are there or have there ever been ASTs on site? Were the ASTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?</p>	
<p><u>General Fuel Storage and Handling</u> Is there or has there ever been any storage of oils and/or other fuels (i.e. coal, kerosene) on site? Are there or have there ever been any barrels or drums on site? Are they in use? How long have they been used? What items are stored in the drum(s)? Have there ever been any hazardous spills (oil, fuel) that may have occurred?</p>	None known or observed.
<p><u>Spill and Stain Areas</u> Is there or has there ever been any staining or stressed vegetation in the area? If yes describe.</p>	None known or observed.
<p><u>Emergency Generator</u> Is there an emergency generator on site? Is the generator fuel or battery operated? Is the tank connected to the generator? Where is the generator stored? Is there a maintenance log or test log? What is the last log date and result?</p>	
<p><u>Chemicals</u> Are there or have there ever been any chemicals stored and/or used on site? Have there ever been pesticides/herbicides used on the property and/or adjoining properties?</p>	
<p><u>Lead</u> Are you aware of any lead-based paint used on the site? If so, do you know if non-lead-based paint has been painted over the lead-based paint? What is the condition of the paint? Were lead acid batteries used at the site? If so, how were they disposed of?</p>	

<p><u>Mercury</u> Has there ever been mercury-containing material on site?</p>	
<p><u>Polychlorinated Biphenyls (PCBs)</u> Are there any PCBs associated with the facility (i.e. transformers or fluorescent lights)?</p>	
<p><u>Asbestos-Containing Materials</u> Are there any asbestos containing materials on site? If so, what/where? Is the asbestos friable or non-friable? What is the condition of the asbestos?</p>	
<p><u>Urea Formaldehyde Foam Insulation (UFFI)</u> Area there any UFFI containing materials on site?</p>	
<p><u>Ozone-Depleting Substances (ODSs)</u> Area there any ODSs on site? If so what/where, etc?</p>	
<p><u>Mould Concerns</u> Are there any mould issues in the buildings? Any other type of air quality problems associated with the building?</p>	
<p><u>Drinking Water</u> What is the source of potable water? (i.e. municipal, drilled well, dug well, bottled water, other) If bottled water, what is the method of payment? Location of water source? Description of water treatment. Have there any been any complaints about the quality of water? (i.e. aesthetic, odour, fixtures, etc) When was the water last tested?</p>	
<p><u>Domestic Wastewater</u> What is the system of domestic wastewater treatment? (i.e. municipal sewer, septic) Where is the septic bed located? When was the septic tank last pumped? Where are the wastewater discharge facilities? Does the site have storm sewers to handle drainage or does it rely on surface runoff?</p>	
<p><u>Solid Waste</u> What current options are available of the disposal of solid waste? (regular waste, refundable recycling, recycling, compost, batteries) Are there blue and green bins in the detachment?</p>	
<p><u>Air Emissions</u> Are there any air emissions associated with the facility?</p>	
<p><u>Environmental Concerns</u> Is the property located on or close to any ecologically sensitive areas (i.e. wetlands, flood plains, scenic areas, National or Provincial Parks)? Are you aware of any other environmental concerns related to the subject property? Is there a history of environmental problems in the general area? (i.e. flooding) Is there or has there ever been evidence of environmental hazards on adjacent properties?</p>	<p>No known environmental concerns on his property or in the vicinity.</p>

Interview #4	
Contact Person: Mrs. Mary Andersen Position: Local Resident Phone: 709-923-2268 Notes: Has lived in Makkovik for her entire life.	Completed by: Nicole Schaffer Site Name: Makkovik RCMP Detachment Site ID: Date: November 1, 2006
<u>General Questions</u> How is the facility powered? In what year was the facility constructed? Has the facility been moved and/or remodeled?	
<u>Underground Storage Tanks (USTs)</u> Are there or have there ever been USTs on site? Were the USTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?	
<u>Aboveground Storage Tanks (ASTs)</u> Are there or have there ever been ASTs on site? Were the ASTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?	
<u>General Fuel Storage and Handling</u> Is there or has there ever been any storage of oils and/or other fuels (i.e. coal, kerosene) on site? Are there or have there ever been any barrels or drums on site? Are they in use? How long have they been used? What items are stored in the drum(s)? Have there ever been any hazardous spills (oil, fuel) that may have occurred?	
<u>Spill and Stain Areas</u> Is there or has there ever been any staining or stressed vegetation in the area? If yes describe.	None known or observed.
<u>Emergency Generator</u> Is there an emergency generator on site? Is the generator fuel or battery operated? Is the tank connected to the generator? Where is the generator stored? Is there a maintenance log or test log? What is the last log date and result?	
<u>Chemicals</u> Are there or have there ever been any chemicals stored and/or used on site? Have there ever been pesticides/herbicides used on the property and/or adjoining properties?	
<u>Lead</u> Are you aware of any lead-based paint used on the site? If so, do you know if non-lead-based paint has been painted over the lead-based paint? What is the condition of the paint? Were lead acid batteries used at the site? If so, how were they disposed of?	

<p><u>Mercury</u> Has there ever been mercury containing material on site?</p>	
<p><u>Polychlorinated Biphenyls (PCBs)</u> Are there any PCBs associated with the facility (i.e. transformers or fluorescent lights)?</p>	
<p><u>Asbestos-Containing Materials</u> Are there any asbestos-containing materials on site? If so, what/where? Is the asbestos friable or non-friable? What is the condition of the asbestos?</p>	
<p><u>Urea Formaldehyde Foam Insulation (UFFI)</u> Are there any UFFI-containing materials on site?</p>	
<p><u>Ozone-Depleting Substances (ODSs)</u> Are there any ODSs on site? If so what/where, etc?</p>	
<p><u>Mould Concerns</u> Are there any mould issues in the buildings? Any other type of air quality problems associated with the building?</p>	
<p><u>Drinking Water</u> What is the source of potable water? (i.e. municipal, drilled well, dug well, bottled water, other) If bottled water, what is the method of payment? Location of water source? Description of water treatment. Have there any been any complaints about the quality of water? (i.e. aesthetic, odour, fixtures, etc) When was the water last tested?</p>	<p>Water system is municipal throughout town.</p>
<p><u>Domestic Wastewater</u> What is the system of domestic wastewater treatment? (i.e. municipal sewer, septic) Where is the septic bed located? When was the septic tank last pumped? Where are the wastewater discharge facilities? Does the site have storm sewers to handle drainage or does it rely on surface runoff?</p>	<p>Sewage system is municipal throughout town.</p>
<p><u>Solid Waste</u> What current options are available of the disposal of solid waste? (regular waste, refundable recycling, recycling, compost, batteries) Are there blue and green bins in the detachment?</p>	<p>Municipal collection of regular waste</p>
<p><u>Air Emissions</u> Are there any air emissions associated with the facility?</p>	
<p><u>Environmental Concerns</u> Is the property located on or close to any ecologically sensitive areas (i.e. wetlands, flood plains, scenic areas, National or Provincial Parks)? Are you aware of any other environmental concerns related to the subject property? Is there a history of environmental problems in the general area? (i.e. flooding) Is there or has there ever been evidence of environmental hazards on adjacent properties?</p>	<p>No known environmental concerns on RCMP property or in the vicinity.</p>

Interview #5	
Contact Person: Terry Rice Position: Town Manager Phone: Notes: Has lived in Makkovik for several years.	Completed by: Nicole Schaffer Site Name: Makkovik RCMP Detachment Site ID: Date: November 1, 2006
<u>General Questions</u> How is the facility powered? In what year was the facility constructed? Has the facility been moved and/or remodeled?	No knowledge of RCMP detachment.
<u>Underground Storage Tanks (USTs)</u> Are there or have there ever been USTs on site? Were the USTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?	No knowledge of RCMP detachment.
<u>Above-ground Storage Tanks (ASTs)</u> Are there or have there ever been ASTs on site? Were the ASTs removed? When? Was there a report? Was there any spill/leak evidence? Have the present tanks ever been tested for leaks?	No knowledge of RCMP detachment.
<u>General Fuel Storage and Handling</u> Is there or has there ever been any storage of oils and/or other fuels (i.e. coal, kerosene) on site? Are there or have there ever been any barrels or drums on site? Are they in use? How long have they been used? What items are stored in the drum(s)? Have there ever been any hazardous spills (oil, fuel) that may have occurred?	No knowledge of RCMP detachment.
<u>Spill and Stain Areas</u> Is there or has there ever been any staining or stressed vegetation in the area? If yes describe.	No knowledge of RCMP detachment.
<u>Emergency Generator</u> Is there an emergency generator on site? Is the generator fuel or battery operated? Is the tank connected to the generator? Where is the generator stored? Is there a maintenance log or test log? What is the last log date and result?	No knowledge of RCMP detachment.
<u>Chemicals</u> Are there or have there ever been any chemicals stored and/or used on site? Have there ever been pesticides/herbicides used on the property and/or adjoining properties?	No knowledge of RCMP detachment.
<u>Lead</u> Are you aware of any lead-based paint used on the site? If so, do you know if non-lead-based paint has been painted over the lead-based paint? What is the condition of the paint? Were lead acid batteries used at the site? If so, how were they disposed of?	No knowledge of RCMP detachment.

<p><u>Mercury</u> Has there ever been mercury-containing material on site?</p>	<p>No knowledge of RCMP detachment.</p>
<p><u>Polychlorinated Biphenyls (PCBs)</u> Are there any PCBs associated with the facility (i.e. transformers or fluorescent lights)?</p>	<p>No knowledge of RCMP detachment.</p>
<p><u>Asbestos-Containing Materials</u> Are there any asbestos containing materials on site? If so, what/where? Is the asbestos friable or non-friable? What is the condition of the asbestos?</p>	<p>No knowledge of RCMP detachment.</p>
<p><u>Urea Formaldehyde Foam Insulation (UFFI)</u> Area there any UFFI-containing materials on site?</p>	<p>No knowledge of RCMP detachment.</p>
<p><u>Ozone-Depleting Substances (ODSs)</u> Area there any ODSs on site? If so what/where, etc?</p>	<p>No knowledge of RCMP detachment.</p>
<p><u>Mould Concerns</u> Are there any mould issues in the buildings? Any other type of air quality problems associated with the building?</p>	<p>No knowledge of RCMP detachment.</p>
<p><u>Drinking Water</u> What is the source of potable water? (i.e. municipal, drilled well, dug well, bottled water, other) If bottled water, what is the method of payment? Location of water source? Description of water treatment. Have there any been any complaints about the quality of water? (i.e. aesthetic, odour, fixtures, etc) When was the water last tested?</p>	<p>Water system is municipal throughout town.</p>
<p><u>Domestic Wastewater</u> What is the system of domestic wastewater treatment? (i.e. municipal sewer, septic) Where is the septic bed located? When was the septic tank last pumped? Where are the wastewater discharge facilities? Does the site have storm sewers to handle drainage or does it rely on surface runoff?</p>	<p>Sewage system is municipal throughout town. Except for the airport because it is very far away.</p>
<p><u>Solid Waste</u> What current options are available of the disposal of solid waste? (regular waste, refundable recycling, recycling, compost, batteries) Are there blue and green bins in the detachment?</p>	<p>Municipal collection of regular waste</p>
<p><u>Air Emissions</u> Are there any air emissions associated with the facility?</p>	<p>No knowledge of RCMP detachment.</p>
<p><u>Environmental Concerns</u> Is the property located on or close to any ecologically sensitive areas (i.e. wetlands, flood plains, scenic areas, National or Provincial Parks)? Are you aware of any other environmental concerns related to the subject property? Is there a history of environmental problems in the general area? (i.e. flooding) Is there or has there ever been evidence of environmental hazards on adjacent properties?</p>	<p>No knowledge of RCMP detachment.</p>

APPENDIX H: ADDITIONAL SITE PHOTOGRAPHS



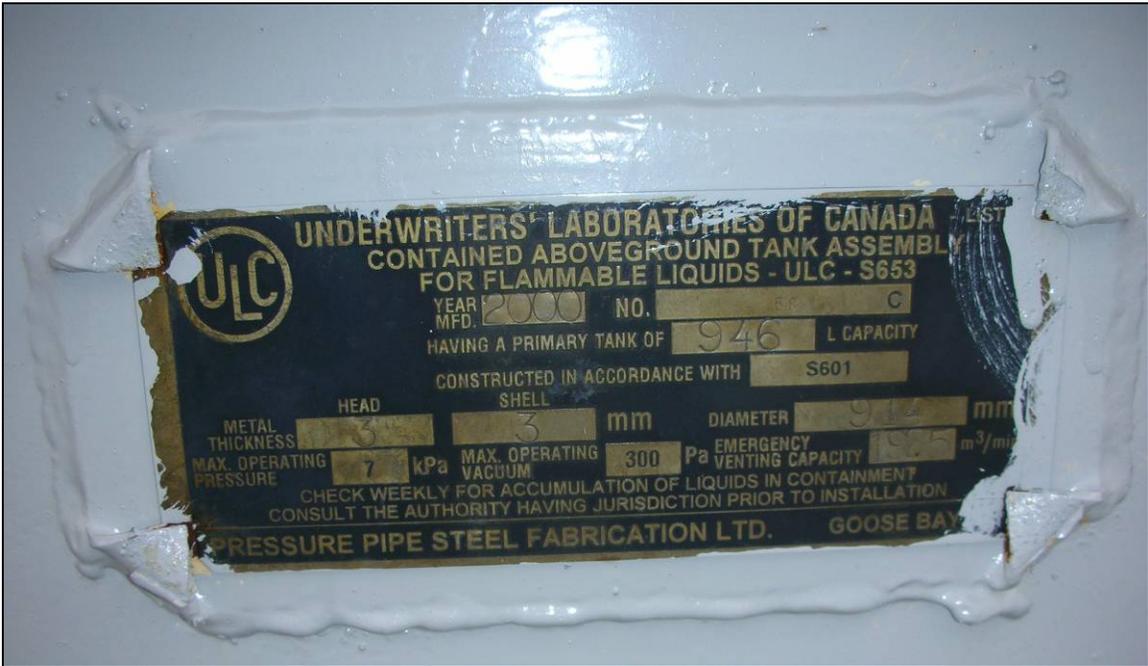
Photograph of insulated pipes in RCMP Detachment. Insulation, walls and ceilings are well covered with fresh paint throughout the entire Detachment.



Photograph of Married Quarters at 15 Andersen St. taken from the steps of the Town Council Office.



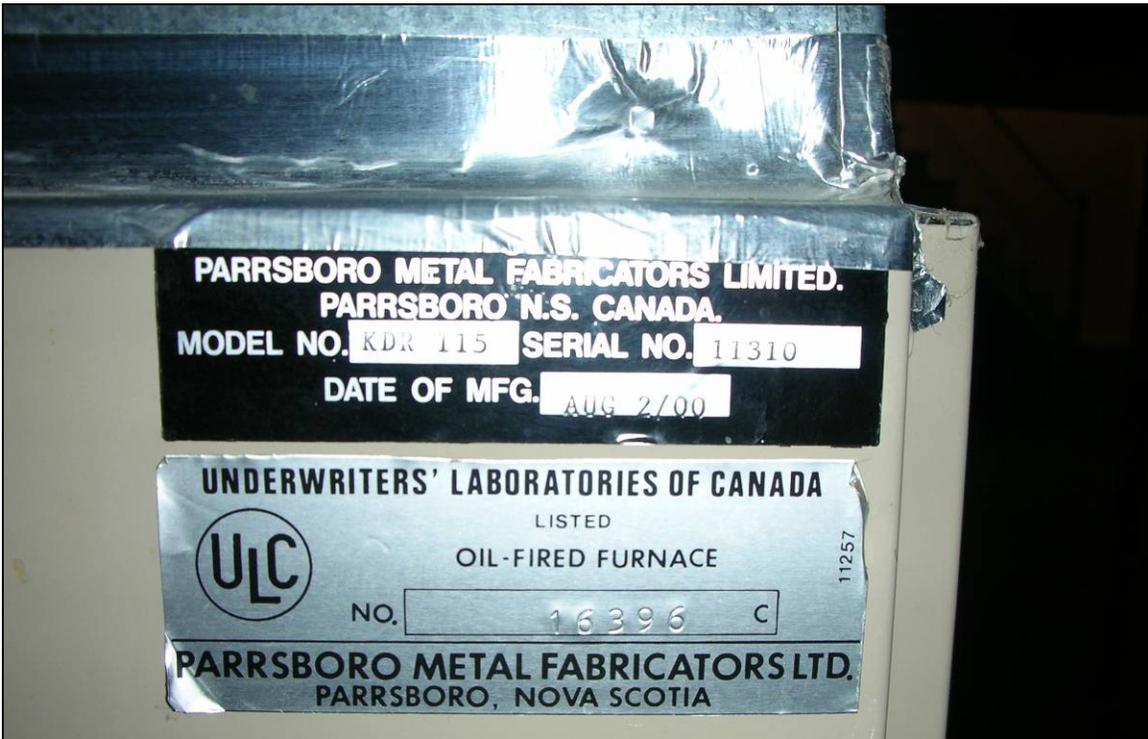
Close up photograph of the fuel line on the AST at the Married Quarters, 15 Andersen St.



Close up photograph of the ULC label on the AST at the Married Quarters, 15 Andersen St.



Photograph of the oil furnace in the basement of the Married Quarters, 15 Andersen St.



Close up photograph of the manufacturer and ULC labels on the oil furnace at the Married Quarters, 15 Andersen St



Photograph of the mini-generator stored in the shed at the Married Quarters, 15 Andersen St.



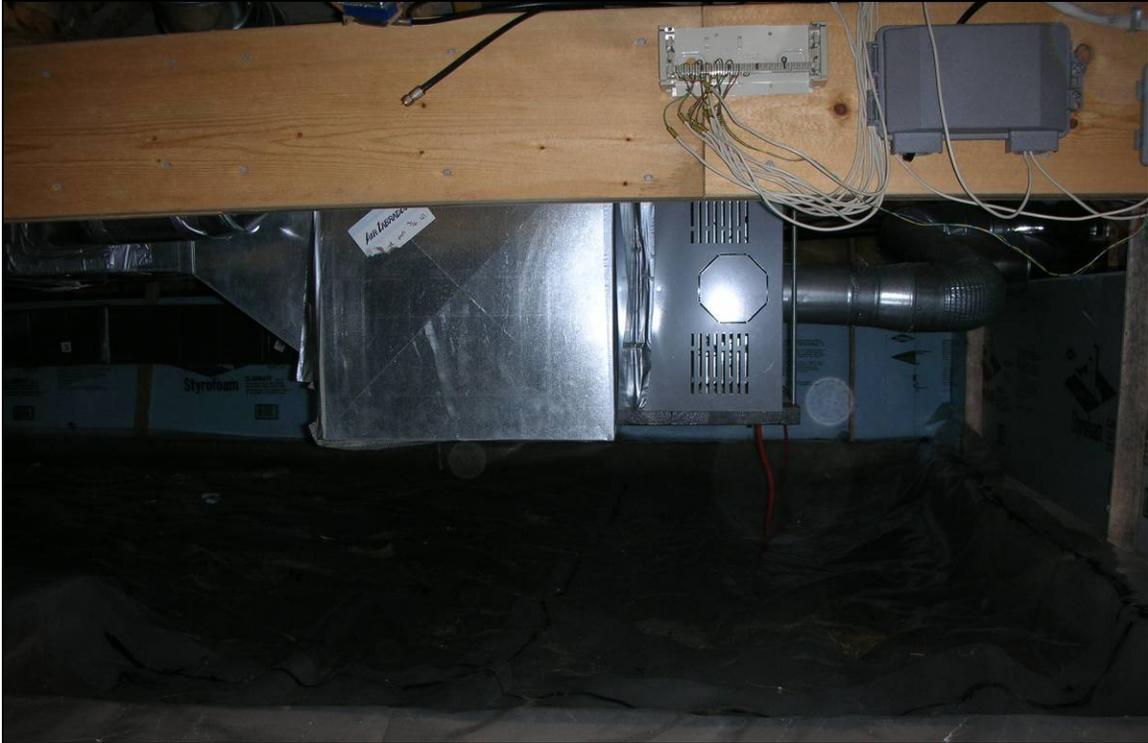
Photograph of the storage shed at 5/7 Hettasch Rd. Married Quarters taken from the end of the driveway looking west up Hettasch Road.



Photograph of Married Quarters at 5/7 Hettasch taken from the corner of Hettasch Rd. and Andersen St. Looking southeast toward the back of the house.



Photograph of the crawl space underneath the Married Quarters, 5/7 Hettasch Rd.



Photograph of the oil furnace in the crawl space at the Married Quarters, 5/7 Hettasch Rd.



Close up photograph of the fuel line on the AST at the Married Quarters, 5/7 Hettasch Rd.



Close up photograph of the ULC label on the AST at the Married Quarters, 5/7 Hettasch Rd.

APPENDIX I: ASSESSOR QUALIFICATIONS

Name: Dr. Daniela Loock

Position: Project Manager

Education: Ph.D. Chemistry

Years Experience: 9

Dr. Daniela Loock, Ph.D., is a Project Manager with the Environmental Sciences Group (ESG) located at the Royal Military College in Kingston, ON. She has a Ph.D. in Chemistry from the University of Victoria, with nine years of experience in the field. Dr. Loock's managerial and technical expertise includes managing projects involving environmental assessments; confirmatory testing following remediation; environmental monitoring projects; and environmental permitting.

Name: Trisha Soja

Position: Team Leader

Education: B.Sc. Earth Science, GIS Cartographic Specialist

Years Experience: 5

Trisha Soja, B.Sc., is a Team Leader with the Environmental Sciences Group (ESG) in Kingston, Ontario. She has a B.Sc. in Geology from the University of Waterloo and has completed the GIS Cartographic Specialist program at Sir Sandford Fleming College. Trisha's technical expertise includes project planning and organization, environmental assessments, environmental sampling, mapping and GIS. Trisha completed the reporting for this site.

Name: Nicole Schaffer

Position: Environmental Advisor

Education: B.Sc. Geological Sciences (with specialization in Environmental Science)

Years of Experience: 2.5

Nicole Schaffer, B.Sc., is an Environmental Advisor with the Environmental Sciences Group (ESG) located at the Royal Military College in Kingston, ON. She has carried out Phase II environmental impact assessments at two former military DEW line sites on Baffin Island. Nicole has also carried out a Phase III remediation at a hydrocarbon-contaminated site on the Labrador Coast.



151 Crosbie Road Suite 402
St. John's, NL A1B 4B4

Bus: (709) 754-4146
Fax: (709) 754-4194
Email: ajones@toalltech.com

December 11, 2013

SNC Lavalin O&M
Gentara Building
P.O. Box 6030, Station C
St. John's, NL
A1C 5X8

RE: Summary of Asbestos Containing Materials – Royal Canadian Mounted Police Building, Makkovic, NL

Attention: Mr. Mike Farrell,

On December 9, 2013 ALL-TECH Environmental Services Ltd. was onsite at the RCMP building in Makkovic, NL to conduct an asbestos reassessment. The following observations were recorded during the reassessment:

- There were no changes to the amount and condition of asbestos containing materials since the original assessment conducted in October 2012.
- Approximately 9 ft² of vinyl sheet flooring was observed to be in fair condition beneath a mechanical unit in Room 4 (see attached photograph).
- Parging on pipe elbows was noted throughout the building but it is unclear if the material was sampled based on the description in the AMP.
- There was a crawl space noted during the 2013 reassessment but was inaccessible due to snow cover.

This summary should be used in conjunction with the Asbestos Report and the Asbestos Floor Plans found in the Asbestos Management Plan.

If you have any questions regarding this summary or the Asbestos Management Plan please contact me at 709-754-4146.

Thank you,

A handwritten signature in black ink, appearing to read 'Aaron Jones', is written over a horizontal line.

Aaron Jones, B.Sc.

Environmental Consultant

ALL-TECH Environmental Services Limited



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 St. John's, NL A1B 4B4

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 Fax: (709) 754-4194
 Email: ajones@toalltech.com

Asbestos Assesment

18/12/2013

Material/Design	Description	Quantity	Condition	Sample	Asbestos Type	Access	Action
Structure No : 958552(B141)		Civic address(Structure name) : Makkovik		Survey Date: 10/04/2012			
Asbestos Present: Yes		Vermiculite Present:					
Level : 01		- First Floor				Asbestos Present:	
Room : 01		-					
Wall	White drywall joint compound			BS-B141-01			
Wall	Drywall			BS-B141-06			
Floor	Carpet						
Ceiling	Drywall			BS-B141-07			
Level : 01		- First Floor				Asbestos Present:	
Room : 02		-					
Floor	Carpet						
Wall	Drywall						
Ceiling	Drywall						
Level : 01		- First Floor				Asbestos Present:	
Room : 03		- Washroom 1					
Ceiling	Drywall						
Pipe	Insulation						
Wall	Drywall						
Floor	Vinyl flooring			BS-B141-03			



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Material/Design	Description	Quantity	Condition	Sample	Asbestos Type	Access	Action
Level : 01 Room : 04		- First Floor -		Asbestos Present: Yes			
Floor	Brown sheet flooring with 12"x12" tile pattern	3 m2	Fair	BS-B141-02	Chrysotile 6%	A	7
Wall	Drywall						
Ceiling	Drywall						
Level : 01 Room : 05		- First Floor -		Asbestos Present:			
Floor	Brown sheet flooring (hard)			BS-B141-04			
Ceiling	3/4" Plywood						
Wall	3/4" Plywood						
Level : 01 Room : 06		- First Floor -		Asbestos Present:			
Ceiling	3/4" Plywood						
Floor	Sheet flooring						
Wall	3/4" Plywood						
Level : 01 Room : 07		- First Floor -		Asbestos Present:			
Floor	Sheet flooring						
Ceiling	Drywall						
Wall	3/4" Plywood						
Level : 01 Room : 08		- First Floor - Washroom 2		Asbestos Present:			
Floor	Sheet flooring						



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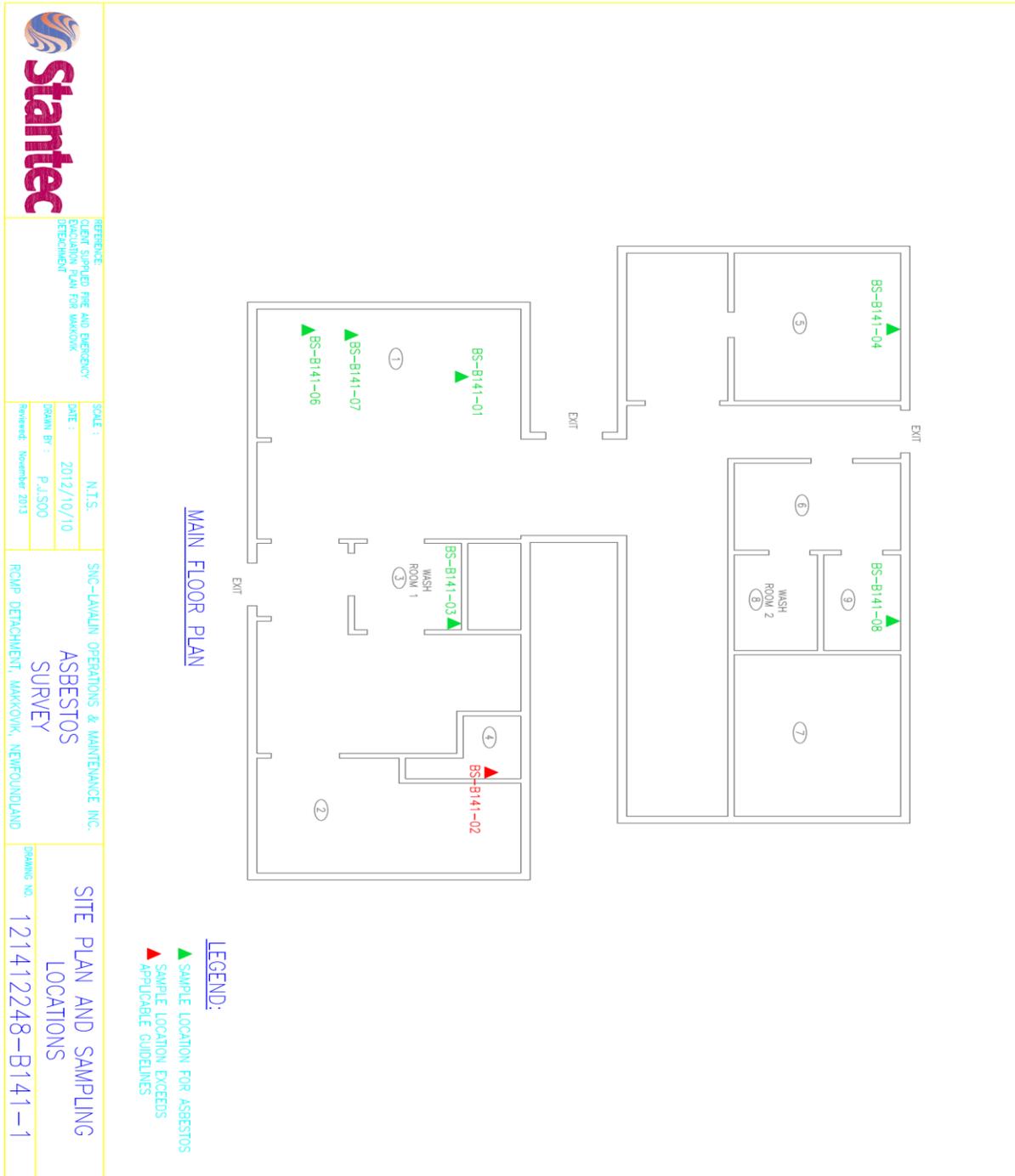
Material/Design	Description	Quantity	Condition	Sample	Asbestos Type	Access	Action
Wall	3/4" Plywood						
Ceiling	3/4" Plywood						
Level : 01		- First Floor		Asbestos Present:			
Room : 09		-					
Wall	3/4" Plywood						
Floor	Sheet flooring						
Ceiling	3/4" Plywood						
Pipe	Insulation pipe wrap			BS-B141-08			

Number of Rows: 30



Photograph 1: Vinyl sheet flooring observed in Room 4 beneath a mechanical unit.

\\COMPAQ-PC\Public\ALL-TECH Network\Profes File\2013\reassessments\Makkovik\Makkovik RCMP Floor Plan.dwg 2013/12/18 - 10:42am AT1 Orven





SNC-LAVALIN
O&M

SNC-LAVALIN O&M

ASBESTOS MANAGEMENT PLAN

Makkovik Royal Canadian Mounted Police Detachment
1 Seaview Crescent, Makkovik, Newfoundland and Labrador

Number	Plan Review or Testing	Reviewed By	Date
001	Initial Document Creation	Sally Inglis	March 6, 2013
002	Annual Documentation Update	Sally Inglis	December 20, 2013
003			
004			
005			
006			

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APPENDICES

Appendix 1 - Annual Asbestos Assessment Information

Appendix 2 - Contractor Notification and Acknowledgement Form and Asbestos Related Work Record

1.0 INTRODUCTION

This plan is in five sections: Sections 1 and 2 present general information about Asbestos Containing Materials (ACMs), and describe the scope and methodology used. Section 4 presents background information on asbestos, descriptions of different types of asbestos abatement operations, detailed work procedures, and guidance for asbestos training for employees and building occupants. The asbestos action plan is presented in Section 5. Supporting information is provided in Appendices at the end of this report.

In accordance with provincial regulations, federal directives and best management practices, abatement work on asbestos identified as being in “Poor” and/or “Fair” condition should be carried out as soon as possible. Asbestos abatement work is to be done by a qualified abatement contractor. The work should be inspected and air monitoring conducted by a qualified consultant to ensure proper procedures and a safe working environment for both abatement contractor and building occupants.

Although not required by regulation, accessible friable ACMs remaining in the building should be removed following the quickest schedule feasible. This will decrease future asbestos management costs and significantly reduce potential asbestos exposures to on-site personnel. A one to three year removal schedule should be considered. Pipefitting insulation can be replaced, if necessary, with pipefitting insulation that does not contain asbestos. The work should be inspected and air monitoring conducted by a qualified consultant to ensure proper procedures and a safe working environment for both abatement contractor and building occupants.

Other ACMs remaining in the Makkovik Royal Canadian Mounted Police (RCMP) Detachment are enclosed, non-friable and/or inaccessible by tenants. Therefore, there are no recommendations for future removal of any ACMs unless renovations or other activities are to take place that may disturb or otherwise encounter ACMs. A summary of ACMs present in the building is detailed in the annual assessment report.

2.0 SCOPE AND METHODOLOGY

The asbestos management plan for this property was developed based on the requirements of the following documents:

- SNC-Lavalin O&M “Asbestos Management Process” Document No: PROC-EM-PWGSC-1.0;
- Public Works and Government Services Canada Departmental Directive (DP 057) “Asbestos Management”, dated March 12, 1997;
- Section 11 of the Asbestos Abatement Regulations, 1998 NL Reg. 111/98 under the Occupational Health and Safety Act, O.C. 98-730 of Newfoundland and Labrador; and
- Federal Treasury Board of Canada Secretariat “Occupational Safety and Health Directive” Part X Hazardous Substances, 10.6 Asbestos Management.

The requirements of the AMP are as follows:

- Minimize any future asbestos fibre release by controlling access to asbestos-containing materials (ACMs) and prevent uncontrolled disturbance of ACMs by establishing safe work procedures for activities that may disturb ACMs in the building;
- Monitor the condition of ACMs. Given the changing nature of the building environment, the condition of ACMs may change before the next reassessment is conducted. By monitoring the condition of the material, AMP-trained building personnel can ensure that ACMs are well maintained;
- Respond quickly and effectively to changes in the condition of the ACMs and properly repair and contain any damaged ACMs that may be encountered in the future;
- Workers must be able to recognize an asbestos emergency and respond accordingly; and
- Applicable regulations must be followed until all ACMs are removed from the building.

This AMP has been developed to assist the building personnel to safely perform their job function when working near ACMs. All building personnel, at a minimum, must read this AMP and be familiar with the following basic elements:

- Asbestos Containing Materials (ACM) Survey;
- Background Information on Asbestos;
- Types of Asbestos Operations;
- Work Procedures/Worker Protection;
- Periodic Surveillance;
- Worker Training;

- Notification of Building Occupants;
- Record Keeping; and
- Asbestos Action Plan.

The asbestos assessment inventory provides a room-by-room description of all ACMs present in the buildings on the date indicated.

3.0 SUMMARY OF ASBESTOS CONTAINING MATERIALS SURVEY

The ACM survey information is maintained in an electronic database. The survey information provides an inventory of the ACMs in a room-by-room format. The condition of the ACMs, are monitored by annual ACM surveys conducted by an asbestos consultant. The annual survey information as well as any asbestos abatement activities or other identified changes in the condition of the ACMs is input into the electronic database by the asbestos consultant and forwarded to both the owner (PWGSC) and property manager (SNC-Lavalin O&M). Building floor plans are also stored in the electronic database. The primary purpose of the drawings is to identify the building room numbers. An Asbestos assessment inventory and floor plan for this facility have been included in **Appendix 1**. Terms and definitions used in the Asbestos assessment, to assess the condition and accessibility of ACMs in the building, are provided at the front of **Appendix 1**. These definitions were established in the Public Works and Government Services Canada (PWGSC) Departmental Directive 057.

Newfoundland, New Brunswick, Prince Edward Island and Newfoundland regulations classify materials that contain 1 % or greater asbestos by volume as asbestos-containing materials. Materials that contain less than 1 % asbestos by volume are considered to have asbestos as a “minor component” of the material and therefore do not necessarily require special handling or disposal.

4.0 ASBESTOS MANAGEMENT PRACTICES

The AMP has been prepared to include the following components:

- Background information on the use, characteristics, potential hazards, and regulatory requirements for asbestos management;
- Requirements of Type 1, 2, 3 asbestos related work and Glove Bag asbestos procedures;
- Work practices, including asbestos project procedures, maintenance and record keeping;
- Asbestos training requirements; and
- A detailed action plan to manage or remove asbestos over a 10-year period (Section 5).

4.1 Background Information On Asbestos

A discussion on ACMs; the development of regulations; and the need for an AMP; specifically related to SNC-Lavalin O&M is provided in the following sections. This discussion is warranted in order to provide an understanding of what asbestos is; what the concerns over asbestos in the work place are; and, why an AMP is required.

4.1.1 Asbestos Characteristics

Asbestos is a family of naturally occurring fibrous silicates from two mineralogical groups:

- Serpentes, which include chrysotile (white asbestos). These spiral fibres are pliable, curly and made up of tiny individual fibrils; and
- Amphiboles, which include amosite (brown asbestos), crocidolite (blue asbestos), and tremolite. Amosite and crocidolite fibres are straight and needle like, whereas tremolite fibres are short and stubby.

The qualities of asbestos that promoted its use in construction are as follows:

- Fire resistance;
- Tensile strength;
- Durability;
- Flexibility; and
- Resistance to heat, wear, corrosion.

Asbestos has many building applications that include:

- Effective insulator against heat, cold, electricity and noise;
- Used as sprayed insulation and fireproofing materials in the period following the Second World War until about 1973;
- Used as a thermal insulator in pipes, boilers and incandescent light reflectors;
- Structural steelwork fireproofing of high-rise buildings;
- Acoustical and decorative purposes in ceiling tiles and building walls; and
- Durability in floor tiles, wallboard, roof shingles and felts, gaskets, caulking, wall and ceiling plasters.

4.1.2 Potential Health Hazards

Asbestos is a health-hazard only if it can get into the body through:

- Inhalation;
- Ingestion; or
- Absorption.

The primary health-related concern of the above list is asbestos inhalation. Respiratory diseases such as asbestosis (lung scarring) and cancers have been clinically linked to prolonged and heavy occupational exposure to airborne asbestos.

Health-related concerns prompted the Ontario Royal Commission on Matters of Health and Safety Arising from the Use of Asbestos in Ontario (1981) to study and report on the health effects of asbestos in buildings in the early 1980's. The conclusion of the Royal Commission report (Chapter 9) was that (Bold added to section to emphasize critical conclusions of the Royal Commission Report):

"The exposure of building occupants to asbestos fibres during normal building use is insignificant, whether as compared to the exposure of insulation workers in the past or as compared to the much lower exposures permitted by the Ontario workplace control limits. Studies of asbestos concentrations in building air have shown that many buildings containing asbestos insulation do not exhibit fibre levels exceeding those in the outdoor air or in buildings not insulated with asbestos. Even when a building exhibits elevated asbestos fibre levels, these are still very low compared to current workplace control limits and are orders of magnitude below the levels to which workers were exposed in the past."

"We will conclude that it is rarely necessary to take corrective action in buildings containing asbestos insulation in order to protect the general occupants of the buildings. **On the other hand, construction, demolition, renovation, maintenance and custodial workers in asbestos-containing buildings may be exposed to significant asbestos fibre levels and may, during their work, cause elevated fibre levels for nearby occupants. THE PROBLEM OF PROTECTING THESE WORKERS, AND OF PROTECTING OCCUPANTS FROM POSSIBLE FIBRE RELEASE AS A RESULT OF BUILDING WORK, IS THE REAL CHALLENGE THAT ASBESTOS INSULATION IN BUILDINGS PRESENTS.**"

4.1.3 Regulatory Requirements

The above conclusions resulted in the development of Occupational Health and Safety Regulations and guidelines in all Canadian provinces and territories for asbestos work. In Newfoundland, asbestos is regulated by regulations and guidelines made under the Occupational Health and Safety Act. They are:

- Asbestos Waste Disposal, PPD98-03 under the Waste Material Disposal Act;
- Asbestos Abatement Regulations, 1998 NL Reg. 111/98; and
- Asbestos Exposure Code Regulations NL Reg. 1144/96

In addition to the provincial requirements, a number of federal departmental directives and guidelines have been adopted for the protection of occupants from asbestos exposure. One of these documents is the Treasury Board of Canada Secretariat “Occupational Safety and Health Directive” Part X Hazardous Substances, 10.6 Asbestos Management. Another such directive is the Public Works and Government Services Canada Departmental Directive (DP 057) “Asbestos Management”, dated March 12, 1997.

An Asbestos Management Plan is a regulatory requirement in Newfoundland, under the Asbestos Abatement Regulations, 1998 NL Reg. 111/98, Section 11. An active AMP is an excellent means to ensure that all of the requirements of the Newfoundland Regulations and Public Works and Government Services Canada Departmental Directive (DP 057) are met, and to prevent exposure of building occupants to asbestos dust. For an Asbestos Management Plan to be effective, it is necessary that a quantitative asbestos survey be conducted, and that a process is in place to implement the Plan. SNC-Lavalin O&M has a policy of conducting routine asbestos survey updates. A copy of the asbestos assessment information is presented in **Appendix 1**. The electronic asbestos assessment database system is updated as conditions change and should be referenced to obtain the current building information.

4.2 Classification of Asbestos Related Work

As the risk of exposure to asbestos fibres increases, more stringent work procedures are required for the remediation of the ACMs. Low-risk (Type I), moderate-risk (Type II) and high-risk (Type III) asbestos related work is governed by separate work procedures. Sections 4.2.1 to 4.2.3 define the types of asbestos related work as outlined in the PWGSC Directive (DP 057) and are

included to provide an overview of each type of work. Section 4.2.4 defines a commonly used work procedure for Type 2 and Type 3 asbestos related work.

4.2.1 Type I or Low-Risk Asbestos Related Work

Asbestos related work classified as Type I or low-risk has minimal risk of releasing asbestos fibres. However, regulations require that precautions be adequate to protect workers from the release of asbestos fibres. Low-risk work procedures cover almost all the asbestos related work involving non-friable ACMs including:

- Installation or removal of a non-friable ACM with a hand tool.
- Disturbance of a non-friable ACM with a powered tool equipped with a HEPA dust collection device.
- Removal of drywall materials where joint filling materials contain asbestos.
- Removal or replacement of ten or less asbestos-containing compressed mineral fibre type ceiling tiles.
- Collecting samples of asbestos-suspect friable materials.
- Working close to friable-sprayed asbestos, where the material may be affected by the work activities.

4.2.2 Type II or Moderate-Risk Asbestos Related Work

Type II or moderate-risk asbestos related work is described as any minor activity that may disturb or involve direct contact with small quantities of friable ACMs that may result in significant potential exposure to airborne asbestos fibres with some health risk. This asbestos related work might include:

- Removal or replacement of more than ten asbestos-containing compressed mineral fibre type ceiling tiles.
- Entry into ceiling spaces, crawlspaces, pipe tunnels, etc., where friable asbestos debris is present.
- In British Columbia, removal of drywall installed before 1980.
- Minor removal of friable ACM. Type 2 removal is limited to a maximum per work period of:
 - In British Columbia - 0.1 m² surface area, or 3 lineal metres of pipe insulation;
 - In Quebec - 0.03 m² of Debris;
 - All Others - 1 m² of surface area.
- Repair of asbestos mechanical insulation. (No limit is imposed as to the amount of repair permitted under Type 2 conditions.)

4.2.3 Type III or High-Risk Asbestos Related Work

Type III or high-risk asbestos related work is described, as any activity for which there is a potential for high exposure to airborne asbestos fibres with high health risk. This asbestos related work may include:

- More than minor removal or disturbance of friable ACM.
- Use of a power tool on non-friable ACM without HEPA exhausted dust collection.
- The spray application of an encapsulant or sealer to friable asbestos surfacing materials.
- Disturbance of the ductwork and air handling equipment serving or passing through areas of buildings with sprayed asbestos fireproofing or insulation.
- Repair, alteration or demolition of a boiler, furnace, kiln, or similar equipment with asbestos-containing refractory.

4.2.4 Glovebag Work Procedure

The removal or repair of asbestos-containing pipe insulation may be conducted using Type II or Type III (moderate-risk or high-risk) procedures. Another option for the removal of asbestos-containing pipe insulation is the glove bag procedure, which is a polyethylene containment bag which fastens around the pipe insulation to be removed and is sealed onto the pipe system. The glovebags are equipped with sealed armholes and a pouch for tools inside the glovebag that allows removal of the insulation inside the glovebag. Once the asbestos-containing pipe insulation has been removed from the pipe and placed in the lower chamber of the glovebag, a small port is used to wet the inside of the glovebag and wash down the exposed pipe. The lower chamber is then re-sealed prior to removal of the glovebag.

4.3 Work Procedures

It is SNC-Lavalin O&M's policy that their employees do not conduct any asbestos abatement (i.e. removals, repairs or disturbances of ACMs) work. All asbestos abatement work is contracted out to qualified asbestos consultants and contractors. In the event of an emergency, SNC-Lavalin O&M building employees should follow procedures outlined in Section 4.3.7, *Asbestos Emergency Response Procedures*.

4.3.1 SNC-Lavalin O&M Personnel and Building Occupant Responsibilities

This section outlines the responsibilities of both the key SNC-Lavalin O&M personnel identified in the AMP and other building occupants. The following presents the key SNC-Lavalin O&M personnel identified in the AMP.

**Emergency Response Contact List
Makkovik RCMP Detachment**

Local Emergency Services

Fire Department	(709) 923-2444
Ambulance	(709) 923-2229
Police	(709) 923-2317

Government Contacts

Environment Canada - Environment Protection Branch – Regional Environmental Emergencies Team (REET) (24 hours)	1 800 565-1633
Newfoundland Department of the Environment and Local Government head office (normal work hours)	(709) 729-2664

SNC-Lavalin O&M Contacts

Building Operating Technician:

TBD

	<u>Office</u>	<u>Pager/Cell</u>	<u>Home</u>
Facility Manager: Harold Driscoll	709-738-6460	709-743-3171	709-743-3171

Health & Safety Coordinator: Merlin Comeau	902-423-8946	902-240-5309	902-240-5309
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Environment Specialist: Sally Inglis	902-423-7731	902-292-1145	902-292-1145
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Operations Manager: Ralph Nelson	506-854-4930	506-863-5364	506-863-5364
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Environmental Contacts

Stantec Consulting Ltd.

<u>24 hour cell phone contact</u>	(902) 221-8921
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Regular Business Hours

Patrick Turner, P.Eng.	(902) 468-7777	(902) 222-7082	
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Licensed Abatement Contractors (two contractors listed in your region)

Powervac Services	Marcus Contracting
155 McNamara Drive	1266 Kenmount Rd
Paradise, NL A1L 0A7	St. John's, NL
1-866-747-3264	709-747-2195

The designated Building Operating Technician should receive, at minimum, training in the area of asbestos management, including identification and classification of asbestos related work, from a qualified consultant. This will allow the individual to perform periodic inspections of the on-site ACMs and determine suitable actions to take.

The responsibilities of the Building Operating Technician for the Makkovik RCMP Detachment include:

1. Identifying, reporting and documenting work related asbestos concerns/emergencies to the Facility Manager;
2. Handling asbestos emergencies as outlined in Section 4.3.6 (AMP Work Practices);
3. Assisting the asbestos consultant during routine ACM inspections; and
4. Updating the AMP binder when new data is received from the Facility Manager and maintaining the binder at a secure location in the facility that is accessible to maintenance staff and outside contractors.

The responsibilities of the Facility Manager for the Makkovik RCMP Detachment include:

1. Conducting quarterly reviews of the implementation of this AMP;
2. Handling questions or requests from tenants or H&S Committees for information regarding asbestos;
3. Preparing standard notification letters for building tenants as outlined in Section 4.4.2 (Notification of Building Occupants/Contractors);
4. Ensure that recommended procedures and safety precautions provided in worker training courses and outlined in this AMP will be followed for planned maintenance work or emergencies involving ACMs;
5. Maintain and update worker training records, Asbestos Related Work Records (ARWR), Contractor Notification and Acknowledgement (CNA) forms, inventories, etc.;
6. Inform the appropriate SNC-Lavalin O&M personnel, contractors, tenants and PWGSC regarding repair, renovation and maintenance or installation work involving ACMs to be performed on site in writing and in advance of work to be performed;
7. Notifying (by email) the H&S Coordinator and PWGSC's Regional Asbestos Coordinator of all planned removals/repairs or emergencies involving ACM in the building;
8. Hiring an Asbestos Consultant to coordinate the removal or repairs of ACMs;
9. Ensuring that all contractors performing work in the building have completed CNA (**Appendix 2**);
10. Submitting copies of CNAs and ARWRs to the Environment Manager and H&S Coordinator;

11. Coordinate with a consultant for routine ACM reassessments;
12. Maintaining and updating the AMP when updates are received from the Asbestos Consultant.

The responsibilities of the Operations Manager for the Makkovik RCMP Detachment include:

1. Coordinating the asbestos training program for all SNC-Lavalin O&M personnel including building operating technicians, maintenance supervisors, facility managers, property service coordinators and project managers.

Asbestos Consultant responsibilities include the following:

1. Updating the locations and approximate quantity of ACMs in the building on building plans and the Asbestos assessment inventory;
2. Classifying asbestos removal or repair work, preparing scope of work or tender documents if required, hiring asbestos contractors and coordinating asbestos related work with Facility Managers;
3. Completing the Asbestos Related Work Record (**Appendix 2**) upon completion of any asbestos related work and submitting it, along with Contractor Notification and Acknowledgement (CNA) form, to the Facility Manager;
4. Selecting and evaluating the use of appropriate safety equipment used in this AMP;
5. Conducting the required training of SNC-Lavalin O&M staff as outlined in this AMP;
6. Providing inspection and air monitoring during asbestos abatement projects. This includes ensuring proper asbestos removal/repair work and safety procedures are followed (i.e. Type 1, 2, etc.) and the specified work outlined in the contract, scope of work or tender is completed;
7. Providing written reports to the Facility Manager summarizing asbestos-related work that has been completed during abatement projects and results of air monitoring tests; and
8. Updating the AMP as required by SNC-Lavalin O&M.

Asbestos Contractor responsibilities include the following:

1. Completing and submitting to the asbestos consultant a Contractor Notification and Acknowledgement (CNA) form (**Appendix 2**) prior to commencing any work;
2. Obtaining work orders from SNC-Lavalin O&M prior to work commencing;
3. Arranging for the proper storage, transportation and disposal of any asbestos waste generated during AMP activities;
4. Supplying waste manifests upon disposal; and

5. Conducting all asbestos abatement project work according to proper work procedures outlined in the scope of work or as instructed by the Asbestos Consultant.

Non-Asbestos Contractor responsibilities:

1. Do not conduct any work at the facility before completing and submitting a Contractor Notification and Acknowledgement (CNA) form and reviewing the Hazards and Precautions identified on the work order; and
2. If materials are encountered or identified in the work areas that are suspected to contain asbestos do not commence work (or if identified during work, stop work) and contact the Building Operating Technician.

Tenant/H&S Committee/Cleaning Contractor/SNC-Lavalin O&M Non-maintenance staff responsibilities:

1. Contact the Building Operating Technician prior to conducting any maintenance work or attaching or removing anything from walls or other surfaces; and
2. Report any damage to walls or other building components to the Building Operating Technician.

4.3.2 Identification of Work that may Involve Asbestos Containing Materials

The first step in any asbestos abatement work is to identify the potential for work to disturb ACM. The following are the three processes by which work is initiated by SNC-Lavalin O&M and asbestos concerns identified.

1. Planned Maintenance:

Planned maintenance involves any maintenance activity carried out on a routine basis. The SNC-Lavalin O&M Building Operating Technician tracks planned maintenance activities and requests work orders in advance of these activities. The work orders identify a specific piece of equipment requiring maintenance and the scope of work to be conducted. The electronic CMMS database system used to produce the work orders will then provide Hazards and Precautions information on the Work Order. The work order is submitted to the field technician who reviews it to determine if the planned maintenance activity will disturb any ACM. If it is determined that ACM will be disturbed, the Building Operating Technician contacts the Facility Manager, who can approve and initiate an Asbestos Related Work Project.

2. Minor Repair:

Minor repairs generally refer to maintenance work costing less than \$5,000. Prior to the initiation of any minor repairs by SNC-Lavalin O&M staff or contractors, a work order is required. Work Orders are requested by SNC-Lavalin O&M technicians by providing a work plan including a scope of work and work location. The Work Order includes Hazards and Precautions information. SNC-Lavalin O&M field staff and contractors are responsible for reviewing the Hazards and precautions to determine if their work will potentially disturb any identified ACM. If it is determined that ACM will be disturbed, the technician contacts the Facility Manager, who can approve and initiate an Asbestos Related Work Project.

3. Project Work:

Major maintenance work and projects typically cost more than \$5,000 and involve more than one room in a facility. These projects are initiated and managed by SNC-Lavalin O&M Project Managers. The Project Managers identify the rooms affected and reviews the Asbestos inventory with the Building Operating Technician. In reviewing the Asbestos inventory the Project Managers determine if the project will disturb any identified ACM. If it is determined that ACM will be disturbed, the Property Manager can approve and initiate an Asbestos Related Work Project.

4.3.3 Asbestos Related Work Procedures

The responsibilities of key SNC-Lavalin O&M personnel, contractors, and consultants in undertaking an Asbestos Related Work Project are outlined in Section 4.3.1, *SNC-Lavalin O&M Personnel and Building Occupant Responsibilities*.

The Regional Asbestos Coordinator for Public Works Government Services Canada (PWGSC) will be notified by e-mail of all planned removals/repairs or emergencies involving ACM materials in the building.

4.3.4 Reassessment and Periodic Surveillance

The Environment Manager will coordinate annual ACM reassessments, which will be completed by an asbestos consultant. The reassessments include identifying and recording changes in the condition of the ACMs including damage and deterioration, and changes in the use and activity of spaces containing ACMs. Special attention will be paid to friable ACMs and ACMs located in high activity areas that are susceptible to damage and subsequent deterioration. Inspections will be conducted annually. The Building Operating Technician should accompany the consultant

during the reassessments. The Environment Manager will ensure that a procedure is in place to collect and maintain all routine inspection documentation and reports. The asbestos information will be maintained in the electronic asbestos database system and updated in this AMP annually to reflect any changes. Information will also be updated in the CMMS system to ensure accurate Hazard and Precaution information is supplied on the work orders.

In addition, maintenance personnel will be trained to recognize damage and changes in the condition of ACMs and suspect ACMs. Maintenance personnel who observe any changes to the condition of the ACMs will notify the Facility Manager immediately.

4.3.5 Labelling

Warning labels should be placed on visible friable asbestos-containing pipefitting insulation. The labels will help remind maintenance personnel, tenants and/or outside contractors of the presence of friable asbestos. Typically, labels should note the following:

DANGER! CONTAINS ASBESTOS
Cancer and Lung Disease Hazard
Do Not Disturb

All other ACMs located in the Makkovik RCMP Detachment are non-friable, inaccessible or are possibly enclosed within various wall and/or ceiling systems and pipe chases. Therefore, no labelling, placards or other mode of identification is necessary on doors, walls or ceilings where ACMs are located.

4.3.6 Record Keeping

Documentation regarding any asbestos related activities must be retained. The Facility Manager for the building will ensure that procedures are in place and are followed to maintain the following documentation/records.

1. Work records documenting all asbestos-related activities, including, but not limited to, repair, enclosure and removal work done onsite must be retained indefinitely;
2. Training records shall be maintained for the duration of employment plus 1 year. Copies shall be placed in the worker files;
3. Notification of the presence of ACMs and other asbestos related documents and correspondences with tenants, building personnel, contractors and consultants shall be maintained indefinitely;

4. Notification letters sent to tenants prior to asbestos related work in their space or area shall be maintained indefinitely;
5. Asbestos survey reports, updates and addenda that reflect the changing condition and quantity of ACMs should be maintained indefinitely. The Asbestos assessment information in **Appendix 1** of the AMP should be replaced with the results of the most recent inspection;
6. A completed asbestos waste manifest for disposed ACMs must be maintained indefinitely; and
7. The written AMP shall be maintained on-site as long as the ACMs remain in the workplace.

4.3.7 AMP Work Practices

Procedures for conducting asbestos related work activities have not been included in this AMP, since it is SNC-Lavalin O&M's policy that their employees do not conduct any asbestos related work. Only Asbestos Emergency Response procedures as described below are applicable at this facility. Should SNC-Lavalin O&M change their policy regarding asbestos related work, the AMP would require updating to include the applicable AMP work practices, additional training requirements for SNC-Lavalin O&M employees, as well as respiratory, medical, and general health and safety requirements.

In order to prevent or minimize the chances of asbestos fibre releases, SNC-Lavalin O&M employees will not conduct any renovations or disturbances that may damage walls and ceilings containing ACMs. Activities that may disturb ACMs include removing, drilling, sanding or cutting into exterior transite paneling; polishing ACM 12" x 12" floor tiles; tearing or ripping pipefitting insulation.

Asbestos Emergency Response Procedures

The following procedures, in accordance with PWGSC's Directive (DP 057), should be followed:

Emergency asbestos procedures shall be implemented when required in order to protect those undertaking the work, as well as to protect all others from, or limit exposure to, airborne asbestos. Procedures indicated shall be followed as closely as possible, in the event of an emergency situation.

Procedures for asbestos work, required as an immediate response to floods, pipe breaks, ceiling collapses, or other emergencies that affect asbestos materials, are as follows:

1. Clear area of all occupants.
2. Construct enclosure around area if time permits.
3. Shut down ventilation system serving area.
4. Worker performing repair shall wear protective respirator and disposable suit. If normal work clothes are worn they must be disposed of if visibly contaminated.
5. Use drop sheet under work, if possible, to minimize clean up.
6. Perform emergency repair with minimum disturbance of asbestos.
7. Obtain asbestos equipment and perform clean up of visible material. Use HEPA filtered vacuum or wet cleaning. Dispose of all cleaning supplies as contaminated waste.
8. The worker should wipe off or vacuum disposable clothing and footwear. Proceed to washroom to wash face and hands.
9. Notify the Facility Manager regarding the asbestos disturbance, before allowing unprotected persons to enter the area. The Facility Manager will contact the PWGSC Regional Asbestos Coordinator to determine if additional precautionary measures are to be implemented. The Facility Manager will arrange for removal, clean up or repair of the asbestos material.
10. The Regional Asbestos Coordinator shall investigate the extent of asbestos disturbance, will determine additional actions to be undertaken and will determine if a hazard investigation under the *Canada Occupational Safety and Health Regulation* is appropriate.

Prior to restarting the HVAC system in the area, careful visual inspection and final asbestos clearance air monitoring must be conducted to verify satisfactory cleanup.

4.4 Asbestos Training and Education

Under Section 7 of the Asbestos Abatement Regulations, 1998, NL Reg. 111/98 made under the Occupational Health and Safety Act O.C. 98-730 of Newfoundland and Labrador, an owner of a building is required to institute and maintain a training program for workers and occupants in the building who are likely to work in close proximity to and may disturb the ACMs.

It is SNC-Lavalin O&M's policy that their employees do not conduct any asbestos related work. Therefore, SNC-Lavalin O&M staff will not carry out any asbestos removal/repair work or any work to encapsulate or enclose asbestos-containing materials. SNC-Lavalin O&M employees are to notify the Facility Manager of any procedures that may disturb ACM. The Facility Manager

can approve and initiate an Asbestos Related Work Project, which will involve bringing in outside asbestos contractors and consultants to deal with any ACM.

4.4.1 Asbestos Training Program for Employees

A qualified consultant should conduct a training program designed to address the specific needs of SNC-Lavalin O&M maintenance personnel involved. The training requirements will consist of instruction in:

1. The hazards of asbestos exposure;
2. Identification of suspect ACMs; and
3. Emergency procedures.

Since operations personnel are not involved in asbestos related work, there is no requirement for detailed training in Type I, Type II and Type III asbestos related work procedures.

Instruction and training should be conducted by competent personnel who are fully qualified as a result of their knowledge and experience with the requirements of the asbestos regulations. They should be familiar with performance standards established by the asbestos regulations, and knowledgeable of potential or real danger to health or safety in the work place related to asbestos issues.

Typical awareness and management training requirements will consist of instruction in:

- Introduction to asbestos in general;
- Review and identification of ACM specific to each applicable facility;
- Overview of asbestos inventory and assessment reports;
- Asbestos production and uses;
- Friable and non-friable asbestos products;
- Friable sprayed products used in buildings;
- Insulation used on mechanical systems;
- Health effects – occupational and non-occupational;
- Provincial asbestos regulations and the PWGSC Directive (DP 057);
- Classification of asbestos work;
- Asbestos management;
- Worker protection; and
- Asbestos control options.

Upon completion of the training session, the attendees will be provided with written copies of a training manual. The H&S Coordinator will ensure procedures are in place to maintain a list of trained workers with the date and type of training. The Facility Manager will maintain training records. New SNC-Lavalin O&M building employees should be informed of the presence of ACMs and briefed on the AMP before they begin work, and at the earliest possible convenience they should attend a training program.

4.4.2 Notification of Building Occupants/Contractors

The Facility Manager will inform the tenant H&S committees, cleaning contractors, building occupants and outside contractors about the location and physical condition of the ACMs that are located in close proximity, and stress the need to avoid disturbing the material. Building occupants, including tenants, and outside contractors should be notified for two reasons:

1. The law requires that owners inform building occupants of any potential hazard in their vicinity; and
2. Informed persons are less likely to unknowingly disturb the material and cause dust to be released into the air.

Outside contractors are informed about the presence of ACMs in the work location in the Hazards and Precautions section of the SNC-Lavalin O&M work orders. The contractors also must sign a Contractor Notification and Acknowledgement form prior to conducting any work (**Appendix 2**).

The Facility Manager will inform the tenant H&S Committees, cleaning contractors, building occupants, and workers by sending them a letter notifying them of the presence and location of ACM that is in the close proximity.

In whatever form, the information given to building occupants and workers should contain the following points to reflect the building conditions:

- The asbestos found in the Baseline Asbestos Assessment in 2012 at Makkovik RCMP Detachment and is located in the following areas:
 - Sheet flooring sampled in Room 04 and is potentially located in other rooms throughout the building. It should be noted that this material may be concealed in other locations throughout the building; care should be taken when removing the flooring.

On December 9, 2013 ALL-TECH Environmental Services Ltd. was onsite at the RCMP building in Makkovic, NL to conduct an asbestos reassessment. The following observations were recorded during the reassessment:

- There were no changes to the amount and condition of asbestos containing materials since the original assessment conducted in October 2012.
 - Approximately 9 ft² of vinyl sheet flooring was observed to be in fair condition beneath a mechanical unit in Room 4 (see attached photograph).
 - Parging on pipe elbows was noted throughout the building but it is unclear if the material was sampled based on the description in the AMP.
 - There was a crawl space noted during the 2013 reassessment but was inaccessible due to snow cover.
-
- All ACMs located in the Makkovic RCMP Detachment are in good or fair condition and hence do not pose a risk to human health.
 - Asbestos only presents a health hazard when fibres become airborne and inhaled. The mere presence of ACMs does not represent a health hazard.
 - Do not disturb the ACMs. Activities that may disturb ACMs include disturbing pipefitting insulation; drilling, sanding or cutting into exterior transite panels; polishing floor tiles or conducting renovations. Contact the Building Operating Technician to make the necessary arrangements if you wish to undertake an activity that may disturb any ACM.

Report any evidence of disturbance or damage of ACMs to:

Name: Harold Driscoll
Office: 709-738-6460
Cell: 709-743-3171
Home: 709-743-3171

- Cleaning and maintenance personnel are taking special precautions during their work to guard against disturbing ACMs.
- Report any improper action (relative to ACMs) of building occupants to the Building Operating Technician.
- All ACMs and suspect ACMs are inspected periodically and additional measures will be taken if needed to protect the health of building occupants.

All building occupants or outside contractors likely to disturb ACMs should be included in the notification program on a continuing basis.

The Facility Manager will inform tenants at least one week in advance of all planned repair, renovation, maintenance or installation work to be completed in their occupied areas that may disturb ACMs. In situations, where asbestos related work will be performed in the common the areas of the building, tenants occupying the same floor as the asbestos related work will be notified. Tenants will not typically be informed of asbestos related work occurring in restricted areas that are isolated from the tenant areas.

5.0 ASBESTOS ACTION PLAN

In accordance with provincial regulations, federal directives and best management practices, asbestos work should be carried out as soon as possible for ACMs that are identified as being in “Poor” and/or “Fair” condition by the asbestos assessment and should be removed by a qualified contractor as soon as possible. The work should be inspected and air monitoring conducted to ensure proper procedures and a safe working environment for both abatement contractor and building occupants.

Although not required by regulation, accessible friable ACMs remaining in the building should be removed following the quickest schedule feasible. This will eliminate future asbestos management costs and significantly reduce potential asbestos exposures to on-site personnel. A one to three year removal schedule should be considered. The work should be inspected and air monitoring conducted to ensure proper procedures and a safe working environment for both abatement contractor and building occupants.

Other ACMs remaining in the Makkovik RCMP Detachment are enclosed, non-friable and/or inaccessible by tenants. Therefore, there are no recommendations for future removal of any ACMs unless renovations or other activities are to take place that may disturb or otherwise encounter ACMs.

APPENDIX 1

ANNUAL ASBESTOS ASSESSMENT INFORMATION

(Note: The information contained in this appendix may not be the most current. Current information should be obtained from the asbestos assessment database prior to conducting any work in areas where Asbestos Containing Materials may be present)

TERMS AND DEFINITIONS

ASBESTOS ASSESSMENT INVENTORY

1.0 INTRODUCTION

The following terms and definitions used in the asbestos assessment; were developed by Public Works Government Services Canada (PWGSC) for use in all federally owned buildings (Departmental Directive (DP 057)). The Action Matrix presented in Section 5 is utilized to help determine the recommended actions contained in this AMP (Asbestos Management Plan).

2.0 ASSESSMENT OF CONDITION

2.1 Spray Applied Fireproofing, Insulation and Texture Finishes

In evaluating the condition of ACM spray applied as fireproofing, thermal insulation or texture, decorative or acoustic finishes, the following criteria apply:

GOOD Surface of material shows no significant signs of damage, deterioration or delamination. Up to one percent visible damage to surface is allowed within range of GOOD. Evaluation of sprayed fireproofing requires the surveyor to be familiar with the irregular surface texture typical of sprayed asbestos products. GOOD condition includes unencapsulated or unpainted fireproofing or texture finishes, where no delamination or damage is observed, and encapsulated fireproofing or texture finishes where the encapsulation has been applied after the damage or fallout occurred.

POOR Sprayed materials show signs of damage, delamination or deterioration. More than one percent damage to surface of ACM spray.

In observation areas, where damage exists in isolated locations, both GOOD and POOR condition may be reported. The extent or percentage of each condition will be recorded on the survey or reassessment form.

NOTE: FAIR condition is not utilized or considered as a valid criterion in the evaluation of sprayed fireproofing, sprayed insulation, or texture coat finishes.

The evaluation of ACM spray applied as fireproofing, non-mechanical thermal insulation, or texture, decorative or acoustic finishes which are present above ceilings, may be limited by the number of observations made, and by building components such as ducts or full height walls that obstruct the above ceiling observations. Persons entering the ceiling area are advised to be watchful for ACM DEBRIS prior to accessing or working above ceilings in areas of buildings with ACM, regardless of the reported condition.

2.2 Mechanical Insulation

In evaluating the condition of mechanical insulation (on boilers, breeching, ductwork, piping, tanks, equipment etc.) the following criteria are used:

GOOD Insulation is completely covered in jacketing and exhibits no evidence of damage or deterioration. No insulation is exposed. Includes conditions where the jacketing has minor surface damage (i.e., scuffs or stains), but the jacketing is not penetrated.

FAIR Minor penetration damage to jacketed insulation (cuts, tears, nicks, deterioration or delamination) or undamaged insulation that has never been jacketed. Insulation is exposed but not showing surface disintegration. The extent of missing insulation ranges should be minor to none.

POOR Original insulation jacket is missing, damaged, deteriorated or delaminated. Insulation is exposed and significant areas have been dislodged. Damage cannot be readily repaired.

The evaluation of mechanical insulation may be limited by the number of observations made and building components such as ducts or full height walls that obstruct observations. In these circumstances, it is not possible to observe each foot of mechanical insulation from all angles.

2.3 Friable Asbestos Materials

A friable asbestos material is an asbestos containing material, that when dry, can be crumbled, pulverized or powdered by hand pressure. This definition also includes dust or debris arising from non-friable materials that are, or will become, crumbled, pulverized, or powdered, i.e. asbestos containing plaster disturbed by demolition. Friable asbestos-suspect products include: Sprayed asbestos products, (fireproofing, thermal insulation, acoustic insulation or decorative products), applied in 1974 or earlier; Acoustic or texture plaster applied in 1983 or earlier; Mechanical insulation installed in 1983 or earlier, (jacketed or not); Compressed mineral fibre ceiling tiles installed in 1983 or earlier.

2.4 Non-friable and Potentially Friable Materials

Non-friable materials generally have little potential to release airborne fibres, even when damaged by mechanical breakage. However, some non-friable materials, i.e., exterior asbestos cement products, may have deteriorated so that the binder no longer effectively contains the asbestos fibres. In such cases of significantly deteriorated non-friable material, the material will be treated as a friable product.

3.0 EVALUATION OF ACCESSIBILITY

The accessibility of building materials known or suspected of being ACM is rated according to the following criteria:

ACCESS (A) Areas of the building within reach (from floor level) of all building users. Includes areas such as gymnasiums, workshops, and storage areas where activities of the building users may result in disturbance of ACM not normally within reach from floor level.

ACCESS (B) Frequently entered maintenance areas within reach of maintenance staff, without the need for a ladder. Includes: frequently entered pipe chases, tunnels and service areas or areas within reach from a fixed ladder or catwalk, i.e., tops of equipment, mezzanines.

**ACCESS (C)
EXPOSED** Areas of the building above 8'0" where use of a ladder is required to reach the ACM. Only refers to ACM materials that are exposed to view, from the floor or ladder, without removing or opening other building components such as ceiling tiles, or service access doors or hatches. Does not include infrequently accessed service areas of the building.

**ACCESS (C)
CONCEALED** Areas of the building, which require the removal of a building component, including lay-in ceilings and access panels into solid ceiling systems. Includes rarely entered crawl spaces, attic spaces, etc. Observations are limited to the extent visible from the access points.

ACCESS (D) Areas of the building behind inaccessible solid ceiling systems, walls, or mechanical equipment, etc., where demolition of the ceiling, wall or equipment, etc., is required to reach the ACM. Evaluation of condition and extent of ACM is limited or impossible, depending on the surveyor's ability to visually examine the materials in Access D.

4.0 ACM DEBRIS

4.1 DEBRIS From Friable ACM

The presence of fallen ACM is noted separately from the presumed friable ACM source (sprayed fireproofing, thermal insulation, texture, decorative or acoustic finishes or mechanical insulation) and is referred to as DEBRIS.

4.2 DEBRIS From Damaged Non-Friable ACM

The presence of fallen ACM, from damaged non-friable ACM, is reported separately from the non-friable ACM source. Only fallen non-friable ACM, that has become friable, is reported as DEBRIS.

The identification of the exact location or presence of DEBRIS on the top of ceiling tiles is limited by the number of observations made and the presence of building components such as ducts or full height walls that obstruct observations. Workers are advised to be watchful for the presence of DEBRIS prior to accessing, or working in proximity to, mechanical insulation or above ceiling areas of buildings with ACM, regardless of the reported presence or absence of DEBRIS.

5.0 ACTION MATRIX AND DEFINITIONS

The Asbestos Management Program requires the following responses:

- Immediate clean-up of DEBRIS that is likely to be disturbed;
- The removal, repair or enclosure of friable ACM in POOR or FAIR condition where continued deterioration will result in DEBRIS that is likely to be disturbed.

The following factors shall be considered in making site-specific recommendations for compliance with the regulation, and for the practical implementation of asbestos management:

- i) ACM in **POOR** condition is not routinely repairable.

If an abatement action is necessary, removal is the recommended action (enclosure is a viable option in unusual circumstances).

- ii) Mechanical insulation in FAIR condition will be repaired or removed based on the following general recommendations, applied on a case-by-case basis.
- Repair ACM mechanical insulation found in FAIR condition in ACCESS (B) or ACCESS (C) EXPOSED areas.
 - Remove ACM mechanical insulation found in FAIR condition in ACCESS (B) and ACCESS (C) EXPOSED areas, where future damage to the ACM is likely to occur.
- iii) ACM in GOOD condition present in ACCESS (A) can be managed by surveillance, as long as it is not disturbed by future renovation, maintenance or demolition. Proactive removal of the ACM in ACCESS (A) will be considered where damage is possible by ongoing occupant activity (accidental or intentional).

- iv) Non-friable or manufactured products are considered in the action matrix as follows:

Non-friable and manufactured products reported in POOR condition, or friable DEBRIS resulting from the deterioration of non-friable ACM, are treated as friable materials and the appropriate Action, depending on accessibility, is determined from the Action Matrix for friable ACM.

For non-friable or manufactured products reported in GOOD condition, Action 7 (surveillance) is recommended regardless of Accessibility.

- v) Remove all ACM from a particular area where small quantities of asbestos are present and removal will negate the need for the use of the Asbestos Management Program in that area.

The Action Matrix provided below establishes the recommended asbestos control action. The ACTIONS are described in full following the matrix.

5.1 Action Matrix Table

ACTION MATRIX TABLE FRIABLE ACM CONDITION				
ACCESS	GOOD	FAIR	POOR	DEBRIS
(A)	ACTION 5/7 ¹	ACTION 5/6 ²	ACTION 3	ACTION 1
(B)	ACTION 7	ACTION 6/5 ³	ACTION 3	ACTION 1
(C) exposed	ACTION 7	ACTION 6	ACTION 4	ACTION 2
(C) concealed	ACTION 7	ACTION 7	ACTION 4	ACTION 2
(D)	ACTION 7	ACTION 7	ACTION 7	ACTION 7

¹If material in ACCESS (A)/GOOD condition is not removed ACTION 7 is required.

²If material in ACCESS (A)/FAIR condition is not removed ACTION 6 is required.

³Remove ACM in ACCESS (B)/FAIR condition if ACM is likely to be disturbed.

5.2 Action Definitions

ACTION 1 Immediate Clean Up of Debris that is Likely to Be Disturbed

Restrict access that is likely to cause a disturbance of the ACM DEBRIS and clean up ACM DEBRIS immediately. Utilize correct asbestos procedures. This action is required for compliance with regulatory requirements. The surveyor should immediately notify the Regional Asbestos Coordinator of this condition.

ACTION 2 Entry Into Areas With ACM Debris - Type 2 Precautions

At locations where ACM DEBRIS can be isolated in lieu of removal or cleaned up, use appropriate means to limit entry to the area. Restrict access to the area to persons utilizing Type 2 asbestos-work precautions. The precautions will be required until the ACM DEBRIS has been cleaned up, and the source of the DEBRIS has been stabilized or removed.

ACTION 3 ACM Removal Required for Compliance

Remove ACM for compliance with regulatory requirements. Utilize asbestos procedures appropriate to the scope of the removal work.

ACTION 4 Access into Areas Where ACM is Present and Likely to be Disturbed by Access - Type 2 Precautions

Use Type 2 asbestos precautions when entry or access into an area is likely to disturb the ACM. ACTION 4 must be used until the ACM is removed (Use ACTION 1 or 2 if DEBRIS is present).

ACTION 5 Proactive ACM Removal

Remove ACM in lieu of repair, or at locations where the presence of asbestos in GOOD condition is not desirable.

ACTION 6 ACM Repair

Repair ACM found in FAIR condition, and not likely to be damaged again or disturbed by normal use of the area or room. Upon completion of the repair work, treat ACM as material in GOOD condition and implement ACTION 7. If ACM is likely to be damaged or disturbed, during normal use of the area or room, implement ACTION 5.

ACTION 7 Routine Surveillance

Institute routine surveillance of the ACM. Trained workers or contractors must use appropriate asbestos precautions (Type 1, Type 2 or Type 3) during disturbance of the remaining ACM.

ASBESTOS BUILDING MATERIALS SURVEY

APPENDIX 2

**CONTRACTOR NOTIFICATION AND ACKNOWLEDGEMENT FORM
AND
ASBESTOS RELATED WORK RECORD**



**SNC-LAVALIN
O&M**

SNC-Lavalin O&M Inc.
1660 Hollis Avenue
Suite 301
Halifax, Nova Scotia
Canada B3J 1V7

Telephone: (902) 423-4937
Fax: (902) 423-5975



The Portfolio Health and Safety Coordinator is to be notified of all asbestos related work to be performed, prior to the commencement of the work.

CONTRACTOR NOTIFICATION & ACKNOWLEDGEMENT		
Asbestos Containing Materials (ACMs) have been identified at:	FACILITY NAME	
FACILITY ASBESTOS COORDINATOR	LOCATION	PHONE NO.
<p>Working with asbestos can be dangerous unless appropriate work practices and personal protective equipment are utilised. Inhaling asbestos fibres can cause various types of lung disease including cancer.</p> <p>Only contractors that have received asbestos abatement training can undertake the disturbance of asbestos containing materials.</p>		
<p>By signing this form I acknowledge and understand that I may be working in areas with asbestos-containing materials. Should my work require the disturbance of any ACM or should I accidentally disturb any ACM, I will <u>immediately report</u> this to the Facility Asbestos Coordinator.</p>		
Company Name:		
NAME & TITLE		
Contractor Employee:		
Signature:	Date:	

This form is to be copied, immediately upon completion, to the portfolio Health and Safety Coordinator and the portfolio Operational Support Manager.



**SNC-LAVALIN
O&M**

SNC-Lavalin O&M Inc.
1660 Hollis Avenue
Suite 301
Halifax, Nova Scotia
Canada B3J 1V7

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Fax: (902) 423-5975



This form is to be completed by the contractor or Team member performing asbestos related work.

ASBESTOS RELATED WORK RECORD				
Date:				
Project Location: (Facility & Room #)				
Project Description:				
Start Date/Time:	Finish Date/Time:			
Contractor:	No. of Personnel:			
Supervisor/ Foreman:	Work Phone: Home Phone:			
Names of Contractor Personnel: (PRINT ALL NAMES IN FULL)				
Classification of Work:				
	<input type="checkbox"/>	Type 1 – Removal & Repair	<input type="checkbox"/>	Type 2 – Insulation Removal
	<input type="checkbox"/>	Type 2 – Ceiling Entry	<input type="checkbox"/>	Type 2 – Asbestos Clean-up
	<input type="checkbox"/>	Type 2 – Repair	<input type="checkbox"/>	Type 3 – Removal
Commencement Approved:				
	(PRINT)	(DATE)	(SIGNATURE)	
Completion Approved:				
	(PRINT)	(DATE)	(SIGNATURE)	

A SEPARATE ASBESTOS RELATED WORK RECORD MUST BE PREPARED FOR EACH WORK ORDER OR PROJECT

This form is to be copied, immediately upon completion, to the portfolio Health and Safety Coordinator and the portfolio Operational Support Manager.